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Editorial Note.

The object of the department here opened in the bulletin is perhaps self-evident, but we may indicate that it is primarily intended as a common arena where the several departments and the constituency of this institution may meet for comparison of ideals and methods; and the crumbs that drop from the table of the various classrooms, if gathered and garnished, might serve for the intellectual quickening of many a stranger. We also intend to devote a certain amount of space in each number to the analysis of important educational works as well as to the study of striking tendencies, as exhibited in educational literature or praxis. The present issue is essentially an after-thought, and is to be treated as an explorer in a field where a little friendly co-operation would invite to permanent settlement. The frequency of issue will depend upon self-evident contingencies and will be independent of that of the laboratory portion, whose contributors freely admit that "the gleaning of the grapes of Ephraim is better than the vintage of Abi-ezer."

EDUCATIONAL BRIEFS.

"It is, indeed, a characteristic of fruitful ideas, that they as a rule are developed only in connection with a patient and penetrating investigation of some subject; nevertheless, such an occupation cannot be successful without some guiding theory."—LANGE. Hist. of Materialism.

It has been calculated that a shock sufficient to bring the earth to a stand-still in its orbit would evolve as much heat as the combustion of fourteen earths of solid carbon and result in a reduction of all the earth's elements to a fluid, if not mostly a gaseous condition. Moral:—If the earth moves, don't try to stop it. It is easier and safer to guide a natural tendency than to attempt to suppress.

In Chicago the writer once stood within the wonderful cyclorama, The Battle of the Merrimac and Monitor, when his attention was diverted by a group consisting of a burly, beer-imbued German of the lower class with his two children fresh from school. The children were full of eagerness and enthusiasm and were discussing this and that feature of the scene as appreciatively as a boy and girl only can after recent study of the history involved. Suddenly the father awoke to the fact that his age and position imposed upon him the office of cicerone. He accordingly pointed his stick, and with tipsy dignity began: "Now children, dose is not mans, dose is schust make-believes, dot is not air, de glasses make it look like it vas." "But father, isn't that the Merrimac?" broke in the boy. Vy no, dot is a boat, don't you see, dot is make-believe water, de glasses make it look dot vay. Dot is not vay off; Chicago is out dere, de glasses round here all makes it large about."

The pathetic humor of the incident could not prevent me from reflecting that much of our teaching is as faulty through ignorance and false estimate of the needs of the pupil as that father's description.

When a teacher finds that he has passed a year marking less of hard study and fresh attainment than any year of his student life, let him reflect that his successor has already been nominated. In the economy of nature after a body is dead, the time is not far distant; when it shall be written "Behold he stinketh."

Time was when the greatest difficulty under which the inland or (as Dr. Holmes would no longer say) fresh-water colleges in America labored was the lack of the perspective and stimulus afforded by a cultivated constituency. There were often enthusiasm and self-sacrifice, but too often there was but a very vague notion of what the ideals of college work should be. This is no longer in the same degree true, and the press has, as usual, been a prime mover in uplifting the plane of educational endeavor.

It is needless, then, to disguise the surprise which is felt when one sees in the editorial column of an inland Baptist paper—the Journal and Messenger, of Cincinnati—such a paragraph as the following:

"A pastor, in the families of whose church are a large number of college graduates, told us that there was hardly one of them that was good for anything as a church member."

To christian men of ordinary intelligence, the statement that college graduates are undesirable church members is susceptible of but one inference, namely, that a church in which such men can find no place or welcome is a strong-hold of narrow bigotry and ignorant egotism. The statement is a libel on the cultured church of America.

All educators are interested in the problem of university education in America. But there is much diversity of opinion as to the normal development and ultimate object of the university. A few points we, think, are settled in advance by the conditions existing in America. First, the continental university system cannot be grafted upon the American preparatory system. Our colleges undertake vastly more than the gymnasia of Europe, and turn out students at once better and worse prepared for the higher educational work. The Americans who enter German universities habitually take a high place among the ranks of original workers, though they may have cause to

lament imperfect preliminary drill. The sharp contrast between the routine of the gymnasium, and the freedom of the university, together with the resulting waste of time, are not necessary in America.

The true American university which shall be more than a pitiful imitation of an unnatural system must be the outgrowth of American experience and existing institutions.

So far, at least, as the scientific course is concerned, experience seems to indicate that the desire for the further pursuit of topics opened in connection with the collegiate studies furnishes the true *nexus* with the university course. No class, under favorable conditions, completes any scientific topic without furnishing several aspirants for the advanced work in the same line. When teachers and pupils are brought daily within sight and hearing of the investigations of advanced students, the attraction is greatly increased. The combination of college and university instruction under the same management affords opportunity for decided economy in apparatus, corps of instructors, and advertising, as well as in general endowment.

There is a characteristically American fallacy regarding the essentia of the higher instruction. The prime requisite is stated to be money. Of course, some money is necessary, but the lavish expenditure in buildings and in display-apparatus is foolish and unnecessary. The real essentials are two—men and books, but especially men. It may be replied that to secure the best instructors large salaries are necessary. But, as a matter of fact, the true teacher is not avaracious, and appreciates the spirit and scope of his work more than its rewards.

The man who is adapted to conduct truly original work is himself an investigator, and he will prefer to labor where time and appliances for his own studies are offered, with large liberty in laying out the work, rather than where a larger salary brings with it constraint and uncertainty.

The contact of a moment with a teacher overflowing with the contagious enthusiasm of a personal struggle with stubbornly concealed fact, is worth more than hours of routine drill under the *hired* instructor.

The typical American university will be, we believe, the outgrowth of the college. It must be remembered, however, that few of the graduates of American colleges are financially able to endure longer unaided the already exhausting drain. Some provision for assisting promising students must be devised. The most economical method seems to be that of active fellowships. There are always connected

with the university system many sorts of drudgery which require and confer discipline. A foundation which pays a small stipend for such assistance not only enables the student to pursue his studies, but relieves the instructor of much unproductive labor. In many cases, the gathering of material for a special investigation at once familiarizes the collector with the practical details of a subject, while supplying the experienced student with available material. The fact that this kind of assistance in no way compromises the self-respect of its recipient is no small argument in its favor. Certainly the church, as well as society at large, has need of well-trained teachers no less than of clergymen.

One of the significant signs of closer articulation between college life and what is known as "real life," is seen in the increasing amount of attention given in the college course to social and economic questions. Johns Hopkins, Harvard, Columbia, Cornell, the University of Pennsylvania, and the University of Michigan all supply courses in social science.

The practical study of such questions as immigration, poor laws, pauperism and crime, child labor and woman labor, unremunerated industries, etc., cannot fail to remind the student that he is not a member of a medieval monastery but a part of vital modern civilization, bearing his share of its responsibilities and burdens.

The question arises whether the benefits of such study can be offered the students in only a few exceptional colleges and in the universities. We think not. The inductive method is possible in connection with the term usually given to ethics or political economy. Thus, various students may be asked and assisted to collect and digest data on such topics as these in the adjoining city or community. What is the average school life of boys—of girls—of foreigners—of rich—of poor? What is the ratio of various employments in your township, ward, or school district and what is the renumeration of each? From what class or nationality do the criminals in your district chiefly come? What crimes are especially characteristic of uneducated, and what crimes find their victims among the more cultivated? What is the ratio of contributed to accepted charity? What proportion of the population is not reached by specific religious influence? In many branches of such investigation, the humane and religious institutions would gladly co-operate and the collection of statistics might be combined with charitable or religious work.

BOOKS AND AUTHORS.

Lotze's Ontology—The Problem of Being.

So long as man delights in the pure activity of reason, the fundamental question of philosophy will reappear in varied form.

To recapitulate the various views as to what consitutes being would be to review the course of philosophy from the Eleatics with their *Pure Being* to modern materialism with its omnipotent atoms. To define the terms employed in the discussion would be a repetition of the task of Wolff, who taught philosophy the modern tongue, and of the task of Hegel, whose subtile analysis seems to have exhausted the possibility of further dismemberment, if, indeed, it has not so divorced the essentials from the essence as entirely to dissipate being in the dust of formal logic.

No recent writer has contributed more substantially to the solution of this problem than Hermann Lotze, whose writings are just becoming known and appreciated in this country in spite of the inadequate and possitively inaccurate translations which furnish the medium through which his thought reaches the English-reading public. Lotze is especially valuable on account of his clear statements of the limitation of the sphere of psychological investigation, and because of the tonic antagonism of his monistic idealism to the prevalent dualism or mechanical materialism.

We need at the outset to notice a peculiar apparent contradiction in his method. He explicitly states that metaphysic precedes psychology in natural order, and compares the reverse procedure to the tuning of instruments before a concert. Lotze correctly states that "every one must, in the last instance, judge of every proposition submitted to him upon grounds of which the constraining force presses upon him with immediate assurance." This is, however, far from convincing us of the irrelevancy of close inspection of the source, content, and relations of the given proposition. To his figure we might rejoin that to precede psychology by metaphysics is like painting a picture with an empty color-box. The contradiction is more apparent than real, for evidently Lotze would search for the metaphysical in the psychological content, for he says "the history of science shows that those who resolutely set themselves to mastering certain problems generally found their cognizance of the available appliances and of the use of them grew keener in the use, while, on the other hand, the pretentious occupation with theories of cognition has seldom led to any solid result." How to sever the content of cognition from the process of cognition becomes a hopeless problem from the subjective and dynamical point of view of our author, and need not be solved in practice.

The "idealistic construction of the universe", which Lotze regards as the attainable end of philosophy, does not construe the "dependence of the reals," (otherwise the order of nature) as referable to a fixed and arbitrary law—this is unattainable—but reaches only derived laws. Thus Lotze is world-wide from the older idealists. Indeed, this admission is fatal to a purely idealistic system, as its author evidently felt, and thus he was forced to elevate experience to a place from which the more consistent earlier idealists banished it. For the purely systematic creations of Aristotle and Kant he has little respect, regarding the categories, even as supplemented by Kant, as mere hap-hazard contrivances of psychologists.*

It is certainly a matter of surprise that he should chose, as his fundamental statement, the reality of the distinction between spirit and nature, as the two elements in our universe, and begin with the assumption that no period of human exisence is conceivable when man did not feel himself in opposition to an external world—a psychological rather than a metaphysical determinant.†

This double inconsistancy is again more apparent than real, for he proceeds to reduce everything to a common character of interdependence as immanent in the Infinite, from which some real beings (spirits) are elevated (without being liberated) into the sphere of transcendent existence—a realm of conscious freedom in real dependence, of which more anon.

Then, admitting the complete human subjectivity of our knowledge, he insists on its necessary validity in its own sphere, and builds unhesitatingly on it the structure which is subjected to a final searching test from an ethical point of view.

It is at present, however, with his doctrine of being that we are especially occupied. "Since sensation is the sole *causa cognoscendi* of being, we might make the mistake," says Lotze, "of identifying being with that which reveals it." The question pertinently arises what becomes of being when the only evidence we have of it is removed? The simplest form of answer lies in an appeal to the consensus of sentient beings. This informs us that the conditions of sensation are not solely incident to our individual nature. Just as the more concrete concept of substance is formed from the concurrent testimony of isolated senses, the separate but concordant testimony of various beings is the basis for an act of judgment, out of which rises the concept of independent being as a cause of subjective states.

Essence, says Lotze, must be prior to interaction, but it is equally true that the being of things is only to be found in the reality of certain relations between one and another. The quality of things by

*See for valuable critical notes on the categories, ULRICI, System der Logik.

†Nevertheless, he does not agree with Ulrici in taking the antinonies of consciousness as a starting point.

which they reveal themselves is due to change. The basis of his whole idea of essence is found in the statement, long since published, that "things do not exist by virtue of a substance contained in them, but that their existence consists in the power to produce a given appearance." This, in point of fact, is equivalent to identifying being with energy. Reality is another name for behavior. Such are some of the various ways of stating the same idea.

If being consists in activity, the being of two things in one universe would imply interaction—space is but another name for variety in the modes of this interaction. Our minds compel us to think of energy as a resident in *substance*. This is a necessary postulate of our minds, the correctness of which it is idle to discuss. The power of action and reaction resides in one infinite substance. All the elements of nature are immanent in this Absolute and the gradations of their existence depend on the intensity of the portion of the absolute within them.

An absolutely inactive soul would thus be a nonexistent soul. Immortality becomes a mere potentiality or, as the author himself suggests, a melody with pauses—every lifetime of this soul is a *deed* of the primal external force.*

There are several points in the conclusion reached which require interpretation, and some which seem neither to grow out of the premises nor to correspond with the positions elsewhere taken. In fact, in applying the system, Lotze seems at times to lean to the very verge of a mechanical construction which regards the soul as a condition, and then to fling himself to the other limit of regarding it as a self-centred being with unconditioned spontaneity.

Let us construe the problem of being on the basis suggested by Lotze, but following a slightly different path and remembering that the ultimate criticism of a system must be on the basis of its adaptation to the needs and postulates of the thinking subject. If we cannot, as Lotze claims, predicate from what ought to be what is, yet it will be generally admitted that if our subjective standards of reality fail, there is to us an end of philosophy.

Philosophy has been defined as world-wisdom, but it would be more unambiguous to define it as self-wisdom. "Self" is the necessary postulate and foundation of all knowledge. (Though we may agree with Biran that self reveals itself and the non-ego simultaneously in a sense of effort and its occasion.) This is the thinking object-subject, and knowledge of it is immediate and constitutes consciousness. Con-

*As regards the doctrine of being, many of Lotze's statements were anticipated by Cousin and (more correctly interpreted) by Maine de Biran. Œuvres Philosophiques. Paris, 1841. It is especially in reference to the human will that Biran becomes explicit on this head. "Effort made by the will and directly perceived constitutes the individuality, the ego, the primary fact of the inner sense." The idea of force is the corrolary to that of effort. It seems to us that this forms a valuable supplement to Lotze's idea.

sciousness reveals its content in two forms, active and passive—subjective and objective—distinctions which likewise are immediate in experience, though upon them rests the whole superstructure of psychology.

"Self," as subject-object with its active and passive phases expressed in *volo* and *patior*—the latter further analyzed by psychology into reflexive and independent, *sensibilitas* and *intellectus*, giving us the familiar trinity, will, susceptibility and intellect—must be the starting point for every excursus into the realm of being.

It must be admitted, however, that the criticism of Ulrici upon this point is valid *

Ulrici's argument may be condensed as follows, chiefly in his own words:

The simplest reflection convinces that the idealistic principle—thought and its necessities—constitutes the cause and therefore the only starting point of philosophy.

I have also shown that this intellectual necessity implies, or is rather founded upon, the second or realistic factor of human knowledge, i. e. the activity of a real being. Indeed, thought would be impossible without this realistic factor, and this inheres in the nature of thought as one of its conditions. (Ulrici means by thought, "all spiritual activities or the spirit itself as activity.") We cannot doubt or deny the existence of thought, for such denial or doubt is activity.

This is the real meaning in Des Cartes' famous *cogito ergo sum* and this truth is the starting point of Kant, Fichte and Hegel, Nevertheless Ulrici is unwilling to proceed with Lotze from the fundamental ascertion "I THINK," because this is not an irresolvable and unambiguous concept, but rather from "IT IS THOUGHT," i. e., eliminating entirely the implied problem, "who thinks?" This thought must not be called with Fichte "my thought" for my thought is distinguished as *mine* only when compared with *his* or *yours*. It is quite incorrect to say with Lotze "my thought would obviously remain mine even though every other personality were suddenly annihilated," for, true as this is as a general statement, it would not be true in consciousness except as the memory or mental representative of these other personalities remained, thus taking the place of the actual personalities in my consciousness and continuing the process of comparison or contrast. The criticism thus applied to the concept *mine* applies equally to that of *I*. The self-consciousness implied in the word "I" Ulrici believes is itself a product of an effort of the intellect.

The only thing about thinking which cannot be denied or doubted is its active character, for even the denial is an effort of the intellect. Abstraction, denial, doubt, all are efforts of thought. It is impossible to go back of the primary statement *thought is activity*. As Trendelenburg has shown, all definitions of activity assume the knowledge of what is to be defined Lotze, indeed, responds that it is possible to regard the phenomena of thought as a passive happening in which the mind is simply affected. "Fragen. Untersuchen, Wissen kann ich zwar allerdings als Thaten, als Handlung auffassen . . . ich kann jedoch ebensowohl dieses ganze innere Leben als eine Reihe von Zustaenden, eine Geschichte ansehen, so dass das ganze Schauspiel meiner passiven Zustaende ensteht, die ich bald Frage, bald Untersuchung, bald Wissen nenne." But we think he is fairly answered when Ulrici says, "the difference between Lotze and me consists only in this, he proceeds from definite concepts and their activity without inquiring into their origin or the source originating them, while I begin with thought as the force which originates these concepts. But, I ask, how can concepts be "in me" without my distinguishing them from

*System der Logik, Leipzig, 1852, p. 6, et. seq.

myself or one from another. Further, how is it possible to conceive of, not merely knowledge alone, but even questioning and research as merely passive conditions of the inner life ?"

After all, Ulrici comes upon the ground here indicated when he adds, "Certainty is simply impossible without a something which is certain, (subject) and another something of which it is certain (object), Being certain of something is really the act of separating in the intellectual process the subjective and objective element. Thus the essential element in thought is discrimination or comparison."

We may accept Lotze's reasoning so far as to admit that being comes within the range of our consciousness only in the form of energy. All attempts to define that in which this energy resides prove illusory.* We discover, however, that in our own consciousness all these several forms of energy are efficaceous—must be in order to rise into consciousness. This being so, there must be in us that which can convert all energies into its own. This fact, taken in connection with the inductive law of physics that all the material forces are correlated and convertible, warrants us in assuring the unity of all being in a common sphere.

That all forces are convertible implies the possibility of resolving all into one, in which case substance, the unknown ground of energy, reduces to a like level of uniformity—not a pleasant outlook. Let us trace this thought further. If all forces resolve into one then the possibility of reaction ceases, for in strictness, the same force, cannot operate in opposite directions. Where, however, all force is identical there is no display of energy, or, in other words, all has peished. It is then impossible to conceive of these extinct energies ever being re-

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*In the attempt to mediate being and thought, Trendelenburg seeks a form of activity common to both. This he finds in motion, and, accordingly, motion is that definite form of activity which unites thought and being—activity is the universal, motion the particular

Really, however, there is nothing gained by the apparent analysis over the more general statement that thought and being—soul and body—are inherently active. The common character of this activity is not proved to be motion, or, if both are assumed to be forms of motion, other proof is still needed to explain the interaction between them.

Lotze does good service in emphasizing the fact that materiality is not a self-evident condition of interaction between two beings. The other view is older than Lucretius.

"Tum porro varios rerum sentimus odores,
Nec tamen ad naris venientis cernimus umquam,
Nec calidos aestus tuimur nec frigora quimus
Usurpare oculis nec voces cernere suemus;
Quae tamen omnia corporea constare necessest
Natura quoniam sensus impellere possunt,
Tangere enim et tangi, nisi corpus nulla potest res."
—*De Rerum Natura*, I, 298–304.

We conceive that the theory of being proposed above shows how the common-sense notion that similarity of attribute is a prerequisite to interaction originates. We have seen that the essential thing in attribute is activity. If two beings resemble each other, it is simply because they act in the same way; but acting in the same way in opposite nodes or multiple measure is the essence of interaction.

kindled except some adequate cause be applied to awake the reaction. This is excluded by our premise and, moreover, it is impossible to conceive how conflicting forces could ever destroy each other unless two universes are assumed, when, again, it would be inconceivable how interaction could begin between them. This endless chain of argument clearly shows that the collapse of the system through the sinking to a dead level—absorbtion in Nirvana—is impossible. Thus much to preserve us from an error into which Lotze seems to have nearly fallen.

If being is identified with energy and all being is immanent in the Absolute, it remains to account for the various kinds of being. From moment to moment we are affected by various sorts of stimuli the energy of each of which indicates to our minds a special being. Existence is, in conformity with the above argument, that combination of identity and diversity out of which grow our notions of sequence, cause and effect. Being as continuous, is existence. Existence implies correlated acts of energy in a stated order or method. Existence as self-continuing is life. In life the correlation is sustained from within rather than without. Life as self-conscious implies personality. The relations conceived as existing between these forms of being may be illustrated thus. Two currents of the celestial ether impinge and produce a musical note—that is being; this note varies according to a definite order, producing a melody—that is existence; the eddying forces act and react rhythmically, each impact producing the next—that is life; the notes are wafted back from the unknown in an echo to begin a new refrain, and thus indefinitely in a responsive theme—that is personality.

Lotze was driven by his line of argument to cast doubt upon the substantiality of the soul. But the same shadow must envelop all other kinds of *substance*. The only logical position seems to be pure agnosticism on this point. The energy implied in psychical existence is not denied, and this energy is the soul's being, no matter what its ground, and the sequence of its manifestations constitutes the soul's existence. If it be proper to speak of the life of a soul, it is found evidenced in the capacity to perpetuate its states and predicate its existence. If the soul is personal, it is so because it is conscious of this power, and thus responsible for its execution. Better substitute for what is meant by substantiality is not, for our purpose, necessary.

Lotze in an inconsequent way developed hesitation in postulating the immortality of the soul, chiefly influenced by pathological considerations and what seems to us an erroneous conception of time.*

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*It is believed that modern philosophy has something to learn from Lucretius in the temporal discussion The classical student will perhaps remember the following passage from Lucretius better than the metaphysician:

"Tempus item per se non est, sed rebus ab ipsis
Consequitur sensus, transactum quid sit in aevo,

Tum quae res instet, quid porro deinde sequatur.
Nec per se quemquam tempus sentire fatendumst
Semotum ab rerum motu placidaque quiete."
—*De Rerum Natura*, I, 459-463.

We have already seen that it is unthinkable that all force should be absorbed into one, and thus lost. Brief investigation indicates that the law of conservation of energy applies in all spheres, and that propogation of energy has its own laws.

Being is tossed on the waves of the "becoming," but becoming, in any other than a world of chance, constitutes existence. Self-propogating existence is such becoming as is conforming to the rhythm of the universal pulse, and hence is growing more and more indestructable. Personal existence adds to this conformity that self-consciousness which is but the promise of the highest conceivable state, where each part is conscious of the whole. The existence of the individual implies a law and a progression, this is termed development, while each individual forms part of a progression called evolution. Each of these factors has its counterpart in the nature of man, the first in memory, the second in heredity.

As in the working out of the individual progression (development) memory is a necessary condition, so is heredity an essential condition of the larger progression involving all living beings. But the second of these is seen to be in harmony with a progession expressed in the non-vital existences, in which a sort of memory is provided in *latent energy*, so-called. Thus we see all nature points in one way. First, beings range themselves in sequence producing existence. Inanimate existence is diversified into a great system and in this process lays up stores of latent energy. Living things move in accordance with similar laws and embalm them in heredity, while persons carry in memory the evidence of that path of development which they pursue. With the cumulative evidence thus furnished, shall we hesitate to form the legitimate induction that further evolution is possible? Conscience seems to correspond to memory in a sphere in which forces of a non-physical sort play in the same harmony seen in the more gross activities, and, by the far-reaching sanctions of its laws, conscience claims for its arena a wider domain than that of earth.

What Lotze means by speaking of the soul as a strain of music with pauses is hard to say, but such a conception as seems to be presented is out of harmony with his system as applied to personal existence and is contrary to his teaching elsewhere. Personal existence is a distinct advance on life, as life on existence, and existence on being, yet one grows out of the other and all have their residence in that Universal which, as we have seen, must unify all being in so far as there is a possibility of interaction, This progressive character and interpendence permits us to produce the chain inductively into the future as well as to trace it backward.

The onward sweep of evolution will ultimately overtake the sluggish flood of the physical which forms its present vehicle and beat out

its exhausted force on the unconscious shore of time. What then? Is the individual life, which has been its concrete product, but the luminous foam on the crest of the wave only to fall darkling in its trough? This is incompatible with our law of energy and progression. Where then is the next term of the series—the effect of which our evolution was the cause? In the soul of man there have awakened the unfinished harmonies of beauty, truth, moral worth, happiness. The sphere of these lies beyond the sensuous and in them lies the promise of further development.

If being is action, a pause in an uncompleted harmony would be its destruction. Harmony consists in relations of an orderly kind. To interrupt these relations would be to destroy them. However, this is not saying that *consciousness* is necessarily continuous. Evidently that is what Lotze had in mind when disturbed by pathology. Again, consciousness cannot be *consciously* interrupted, such an expression simply means that more or fewer stimuli are, for a time, warded off from the soul. When all the sensuous images of life fade with the body, what new vistas shall open on the soul—what new music continue the melody of familiar tones—who shall say! As the energy of the being grows more subtile and its range increases, a thousand new stimuli awake it to unfelt sensations and unconceived rapture.

This, it seems to us, is the logical induction from Lotze's idea of being, He himself said that the ultimate criticism of a theory is based on what nature ought to do. Let us see how the theory applies in the realm of human interest and activity.

If being is doing, the right to exist depends on the power to serve. "*Ich diene*" is the device on nature's escutcheon. Life is the rapturous pulse of every capillary in man's nature and happiness is the harmonious vibration of every well-stretched fiber of our being. In the fulfillment of every obligation—the response to every call, lies the promise of perpetuity. The survival of the fittest is no longer a blind and atrocious fatality, it is but the reverse aspect of the law of development. To be fit is merely to be, and being or activity is survival.

Of more practical interest is the personal application of this view. The essence of education and of growth is effort. Symmetrical education, in a true sense, is not so much an essential to success as success itself. In the idleness or inertness of any faculty lies the threat of its speedy extinction. Morality is not a possession but a power. Well-directed altruistic effort identifies self-interest and duty.

The nature which responds most readily to every stimulus afforded by nature, and sees the beauty, and hears the harmony in all, most truly is. It is not the stooping student, the acerbid anchorite, the blind devotee, or the disciple of pleasure, who truly lives, but the man of two worlds whose body moves in this world while his spirit inhabits in inalienable possession temples above the clouds. [C. L. H.]

NOTE—Publishers sending books for review should observe that scientific and educational rather than purely literary topics are germain to our purpose. Memoranda of price, etc., are also desired.

THE PERSONAL ELEMENT IN INSTRUCTION.

By C. J. Baldwin, D. D.

Individuality is that which differentiates one human character from another. It is the cast or quality which gives to each man's work a distinct, unique effect. This element is already recognized as having a scientific value. It has been found that the individuality of a worker may and must be allowed for in determining the precise nature of his work. The "personal equation" has been formulated and used as a factor in the finest problems of applied science. Each observer, calculator, has a spectrum of his own in which the ray of truth which he transmits is crossed by dark lines peculiar to himself. And, just as analysis of the stellar ray reveals to us the chemical elements of distant stars, so may we find in the light emanating from separate minds subtle but sure indications of their inherent qualities.

If this were not so, literature of all kinds would lose much of its charm and power. The monotony of unrelieved sameness would soon check the student's enthusiasm, and one book would be enough. But, as it is, the same subject may present to us an infinite variety of aspects as different authors treat it in their diverse ways, each one shaping or coloring it after his own likeness. We find new meanings in the old truth each time it is translated into the idiom of a life.

Of all cases of this kind the teacher is the most prominent. It is his office to become a medium through which truth is to shine upon the learner. He originates nothing, but transmits or translates. How important then, the quality of the medium, whether it is clear or dim, dense or rare! We are continually noticing this in our text-books, the difference between authors in their power of elucidating and applying the same truths.

Individualism adds something of its own quality to the ray which it transmits. Manliness in the teacher ennobles any communication that he makes. Sympathy, moral earnestness, intellectual honesty, vitalize and recommend even the barest topics.

What a difference between Arnold's lectures on Roman History

and those of Niebuhr, in their power over the student! The secret of the charm which Neander and Tholuck threw over scholastic lore was found in their intense humanity. It was said of Robertson, the famous preacher of Brighton, that he could captivate the heart even when the reason was not convinced. Such is the power of the personal element.

Nothing can take its place. Erudition, critical skill, abundant apparatus, will not compensate for the absence of this attribute. Those who studied Moral Science under Wayland, or Psychology under Hopkins, or Theology under Robinson, or Botany under Gray, will testify that they received as much from the man himself as from the subject matter that he taught. Who could resist the enthusiasm with which Agassiz would describe a fish, or forget the electric thriil which accompanied Mitchell's lectures on Astronomy?

As to whether this power is the result of cultivation or is to be regarded as an original endowment, observation seems to favor the latter view. Some natures are evidentially more highly charged with this magnetism than others. It is one of the qualities of genius. And yet individuality can be developed and emphasized by culture. Whatever broadens or deepens the nature, inspires it with unselfish devotion to the truth and fills it with genuine knowledge, is sure to result, also, in new powers of expression. What we truly love that we are at no loss to describe and recommend.

It is true that strong personality sometimes takes the form of idiosyncrasies, mannerisms which culture corrects. A certain rounding of angles and smoothing of the surface is always the result of training. But, on the other hand, genuine growth insists on self-assertion; so that, if we become less unlike others, we are also more and more true to ourselves. There is an artificial education which robs character of all its originality and reduces personal traits to a uniform standard. Better the primitive wilderness of the forest than such Dutch gardening. Dut there is no loss of individualism, rather a gain of self-reliance and expression, in that development which true cultivation effects.

CHAMISSO AS NATURALIST AND PHILOLOGIST.

By Prof. George F. McKibben.

Upon Monbijou Square in Berlin there was erected in August last a statue to the poet Chamisso. The longest life-time has passed since his story, *Peter Schlemihl*, appeared,—a story written for children, which soon made its author known among civilized nations the world over. Tom Moore's *Irish Melodies* were in their day no more popular in English-speaking lands than were Chamisso's poems in Germany. Though not given to boasting, he could say in a letter written about 1830, "The people are singing my songs; they are sung in parlors; boys declaim them in the schools." This popularity is not yet wholly past; his poems have still a steady though not a large sale among Germans, having the especial distinction of being a very common gift-book for weddings and christenings. For Chamisso is beyond all question the German poet who has most acceptably sung of marriage and home-life. In Robert Schumann's musical setting of Chamisso's *Frauenliebe und Leben*, a group of lyrics unequalled by any who have sung of wedded love, we have that rare combination, music "married to immortal verse," in which each part enhances the beauty and power of the other.

His place in the literature of Germany has long been conceded; his poems alone entitle him to so much of fame. But in that which Germans call the "world-literature" he must also be accorded a place. His *Peter Schlemihl* bears translation, that searching test which tries the worth or worthlessness of a book. Who can read the story, perhaps in the English with Cruikshank's illustrations, without wonder at its ingenuity, deep and sensitive feeling, and sad but wise spirit? The reader probably wonders at another thing; that the hero, though isolated from his kind by his shadowless condition, yet, unembittered by his lost happiness, finds consolation in his power of roaming over the earth, "measuring now its hights, now the temperature of its springs, now that of the air; observing animals, examining plants; hastening

from the equator to the poles, and from continent to continent, comparing one observation with another." This is explained by Chamisso's possession of a claim to distinction in addition to his literary achievement; as a student of nature he deserves mention with Humboldt and Darwin.

Yet not as their equal. Both his general education and his special training were obtained under appalling difficulties. Born in Champagne of noble parents, Chamisso was but nine years old when, in 1790, his family fled from the ancestral castle, involved in the retribution which befell the guilty aristocracy of France. The father of the Chamisso family joined others of his order in the endeavor, with the help of Prussian and Austrian bayonets, to turn back the tide of Revolution. The sons accompanied their mother and sisters and began a really manly struggle for their support. The future naturalist was at one time about to learn the trade of a joiner; he did in his efforts to earn his bread gain some skill in making artificial flowers and, what was afterwards very useful to him, in drawing and painting. In the latter art his elder brothers had become proficient when in 1796, after wandering about Holland and Germany, Berlin became the home of the family. Adelbert became page to the Queen of Prussia and was enabled to study in the French gymnasium. Two years later he was appointed ensign in the Prussian army, in which he spent eight unhappy years, trying repeatedly to resign, until the sudden and crushing defeat of Prussia by Napoleon in 1806 released him. By this time, by dint of remarkable assiduity in private study he had gained an education of surprising thoroughness and breadth, and had written and published poems in both his native and adopted tongue. He had found friends also,—not among his fellow-officers, from whom he was isolated by nationality, tastes and studious habits and, it must be added, by considerable absent-mindness; but in non-military circles he had found, as early as 1803, those with whom he formed life-long friendships. The turning point in his change from Frenchman to German was passed. Six years of rather aimless life in his native and

adopted country and in Switzerland only proved that he had taken root in Germany, and in 1812 he returned to Berlin with the purpose of giving his life to the study of nature, especially botany. The purpose had been formed in Switzerland while with the literary family of the famous Madame De Stael, in company with whose son Auguste Chamisso had taken his first botanizing excursions near Coppet.

The years 1812 to 1815 were spent at the new University of Berlin in the most untiring study of the natural sciences. No time was spent in verse making. The period of Chamisso's special studies saw the tremendous uprising of Germany against Napoleon's power, now shaken by the disaster in Russia, yet still formidable. Germany was chiefly the scene of the struggle. Chamisso naturally had no place in it, and remained passive in the midst of one of the most determined and enthusiastic efforts ever made by a people for its freedom. Berlin became unendurable to him; he retired to the country. But even here and in the midst of his beloved studies he could not forget the terrible conflict in progress. He took up his pen again, and wrote the story *Peter Schlemihl.* This expresses, some think, fancifully but forcibly, the suffering of his sensitive soul at being "a man without a country." It expresses more plainly his longing to travel and study nature and thus forget human dissension. The opportunity soon came and was eagerly seized.

To gain glory as a patron of the sciences, the wealthy Russian chancellor, Count Romanzoff, was at this time preparing to send a ship on a voyage of discovery into the South Pacific and to find the northeast passage from Behring's Strait into the Atlantic. Chamisso obtained a position as naturalist of the expedition and on August 9, 1815, reported at Copenhagen on board the Rurik, a two masted vessel of only 180 tons, which was his home for the next three years. The captain was Otto von Kotzebue.

The voyage which gave to his scientific labors definite direction and material for the rest of his life, was Chamisso's first experience at sea. It brought him first to Plymouth, a few days after the captive

Napoleon had been carried thence to St. Helena; then southward to Teneriffe, Brazil, around Cape Horn to Chili; taking leave then of Spanish-speaking lands, for three months and a half through the islands of the Pacific almost without dropping anchor, to Kamtchatka; in the summer of 1819 through Behring's Strait into the Arctic Ocean and back among the Aleutian Islands, where preparations were begun for the polar voyage proposed for the following summer. In the interval, from September to March, the Rurik sailed to San Francisco, the Sandwich Islands and the Radack chain of the Marshall Islands, seeking chiefly supplies and only incidentally scientific information, it seems. On the return northward from this winter in summer seas there occurred the storm of April 18, 1817, in which the ship was damaged and the commander so injured that the main purpose of the expedition, the search for the north-east passage, was abandoned. On the map Kotzebue Sound, Eschscholtz Bay, Chamisso Island, all under the Arctic Circle, remain as reminders of the captain, the physician, and the naturalist of the Romanzoff expedition. The return voyage brought the Rurik again to the Sandwich Islands, and to the Radack group a third time; thence by the Marianne and Philippine Islands, through Sunda Strait, by the Cape of Good Hope, past St. Helena, (where the strict watch kept over "Prometheus upon his rock" made it dangerous, in the case of the Rurik, to land), on to England, Copenhagen again, and, finally on August 3, 1818, to St. Petersburg. Chamisso declined inviting offers to remain in Russia, was generously allowed to keep his collections, and in October reached Berlin, where he long enjoyed alone the distinction of having sailed around the world.

Though his purpose on returning had been to go upon another scientific journey soon, the remainder of his life was passed in Germany, and, excepting a few absences, in Berlin. For here in 1819 he was given charge of the Botanical Garden, and later of the Herbarium also; about the same time began his married life, which continued without a shadow until his wife's sudden death in 1837. He survived

only a year. His botanical discoveries upon the voyage began at the first port in which the Rurik anchored after he had got aboard. For near Plymouth he found the *Centaurea nigrescens*, previously unknown to English botanists. The unfavorable season, wet at Teneriffe, in Brazil, and dry in Chili, prevented successful collecting. It must be said, too, that Chamisso was not only not aided, but even hindered and thwarted in his duties as a collector by the captain: many carefully gathered specimens, especially sea-weeds, were by the latter's order thrown overboard when left to dry on the deck or in the cabin. This unfortunate circumstance and the limited space at his disposal make it remarkable that Chamisso could accomplish what he did. The flora of the thrice-visited Radack Islands was preserved almost complete. California, as yet almost untrodden by the botanist, furnished much that was new, among other things the *Eschscholtzia californica*, one of the Papaveraceae, named in honor of the ship's physician, who was also the naturalist's most helpful friend during the whole voyage. Seeds of this Californian flower, carried home by Chamisso, gave it a permanent place in the gardens of Berlin. An abundant collection was made upon the islands of the Arctic Ocean of plants which reminded him vividly of the Alpine flora of Switzerland. From the northern regions alone, visited by the Rurik, he brought to Germany more than fifty plants, which thus far had been unknown. The Cape of Good Hope, called the most thoroughly studied botanical garden on earth, furnished him several species new even to the trained eye of Mundt, a Berlin botanist whom he met there.

Though he began at once on his return to arrange his *hay*, as he called his plant-collection, yet he personally did but a small portion of the work. With rare unselfishness he distributed them freely to learned institutions, especially of Berlin, and to other especially qualified botanists, in whose hands they became the basis of many valuable investigations and conclusions. For example, he sent to the Swede Agardh, an authority upon sea-weeds, a collection of *algae* brought home from his journey, among them a rare example of reduplication, found

at the Cape in gathering tang. In this specimen Agardh saw an illustration of his theory of the transformation of plants to animals in the case of certain *algae:* an opinion which Chamisso, who held firmly to the permanency of types, was far from sharing.

The full value of his work as a botanist during the great journey appeared when, shortly after his death, Schlechtendahl, his colleague, published in the botanical journal, *Linnæa*, a description by families of the plants observed upon the Romanzoff expedition. In the name of several of these the discoverer's name is preserved; for instance, the *Cibotium Chamissoi* Kaulfuss, a most beautiful tree-fern of Hawaii.

Chamisso advanced the cause of botany not only by his plant collections, and by his official position, but also by his pen. Contributions to his friend Kunth's *Flora of Berlin* appeared at the same time with his *Peter Schlemihl* in 1815; at the direction of the Prussian government he wrote a book for use in the schools on the plants of North Germany, the introduction to which contains, as he said, his scientfic confession of faith; as an editor of the *Linnaea* he wrote many minor botanical essays, to most of which he furnished his own illustrations, thanks to his skill with pencil and brush.

Thus far this article is about equally indebted to Chamisso himself, Max Koch, and an address delivered in June by Du Bois-Reymond before the Prussian Royal Academy of the Sciences. Among botanists, as the above paragraphs show, Chamisso deserves to be held in lasting remembrance. In other branches of natural history also he rendered valuable help by patient observation and happy suggestion. A quotation from Du Bois-Reymond shall speak for itself: "Chamisso himself was now to make in the domain of metamorphosis one of the most remarkable discoveries. Voyagers in the warmer seas had long observed certain animals, about as large as a mouse, soft, of glass-like transparency, iridescent in the sunshine, which often appear in great numbers upon the water's surface and present the peculiar phenomenon of being united, from 20 to 40 of them, in long chains by special organs of adhesion. These animals, mollusks without head or

shell, are the *salpae*. All members of such a salpian chain are of the same shape and similarly arranged; by taking in and forcing out water they move uniformly and keep step, as it were, and thus the whole chain rows along with serpent-like motions beneath the smooth surface of the sea. Besides the chains of salpae, isolated salpae also occur, but of two kinds. Some bear in their organs of adhesion plain trace of having been members of a chain; others entirely lack any such trace. On the voyage from Plymouth to Teneriffe during a calm, Chamisso made the surprising observation, that the isolated salpae, which never formed part of a chain, always contain spawn which resembles the chain of salpae; on the other hand he found in the members of the chain a spawn whose form corresponds to that of the isolated salpae. The animals which belong to a chain, and which produce isolated salpae, are hermaphrodites; but the isolated salpae are neuter, and the chains are produced in them without fertilization by budding. Two generations thus alternate, one of which is propagated sexually, and the other asexually by internal budding, and which are distinguished by other marks besides. To use Chamisso's figure: a salpa is not like its mother nor its daughter, but rather its sisters and its grand daughters."

"Chamisso named this kind of propagation that by alternating generations. So new and unheard-of did his story appear that, when he related it after his return in a special Latin treatise *De Salpa*, published 1819, it either remained unnoticed or was violently attacked. Meyen, later professor of zoology and natural history at the University of Berlin, who in the years '30-32 sailed around the world as ship's physician on the merchant-man *Princess Louise*, was so unfortunate as to meet with not a single isolated salpa that contained a budding chain of salpae, while free-swimming chains of salpae surrounded the ship in masses. In his doubts concerning the correctness of Chamisso's observations he went so far as to assert that the free-swimming chains of salpae and the chain-germs, which Chamisso claimed to have found in isolated salpae, had nothing at all in common. On the other hand Eschricht in Co-

penhagen assumed Chamisso's facts as correct, but in an extended treatise, in 1841, thus after Chamisso's death, proposed another explanation. * * * Almost immediately after this, in 1842, Chamisso's view found in the same place a defender, and his fame a herald, in our corresponding member Herr Japetus Steenstrup. He succeeded in distinguishing upon the wide field of the doctrine of propagation,—a field abounding in strange things,—a series of development processes, which as a whole can be explained from the point of view of alternation of generations, which Chamisso had first recognized and named. * * * Processes of development in the *medusae*, *strobilae*, *cercariae* and *distoma*, and *aphidae* or *plant-lice*, and later others besides, were thus at one stroke made plain. Johannes Muller's famous discoveries concerning the development of echinoderms formed a step of transition between the phenomena of alternation of generations and those of metamorphosis, of which the frog and butterfly afford the best known instances. The merit of having opened this way belongs, as Herr Steenstrup expressly declares, to Chamisso."

Though sharing in the erroneous view at the time prevalent concerning the coral insect (that it builds its wonderful structure up from immeasurable depths), yet he contributed to the understanding of the subject by observing that the coral grows most rapidly in a violently agitated sea. This more rapid growth, however, he did not ascribe to the real cause, (that the surf secures the insect its needed nourishment), but merely to the mechanical action of the waves. Not for the correct theory of their formation, but for his careful study of their present condition as the abodes of men, does he deserve credit in connection with the coral islands.

In concluding his discussion of Chamisso's contributions to zoology Du Bois-Reymond says: "We should be in error, if we imagined Chamisso's zoological observations directed, according to the manner latterly preferred, only upon the lower animal forms, such as salpae and coral insects. With just as close attention the vertebrate animals of all latitudes were observed: the flying fish, the birds that perched

upon the *Rurik*, the whales, which he dreamed of taming and making serviceable, the sea-lions through whose bellowing herd he fearlessly strode on St. George's Island. Concerning the monkeys taken on board of the *Rurik* he made profound psychological observations. Even the extinct animal-world did not go unnoticed: a tusk, dug up by Chamisso on Kotzebue Sound, was, in accordance with his drawing and description, ascribed by Cuvier in his *Ossemens fossiles* to the mammoth."

"He must ever be regarded as the man who, by distinguishing two chief divisions of the great ocean and a separate group of islands, first shed light upon the mixture of races inhabiting the island-world. The present division into Micronesia and Polynesia * * was substantially made known by him. * * * In the north also Chamisso gave valuable hints concerning the relationship of the Asiatic Tchuktchis and the American Esquimos."

If the celebrated saying of Charles V. is trustworthy, that one is as many times a man as he knows languages, then Chamisso was a man many times over. His native tongue was always available and was resorted to for many practical, everyday purposes; papers on scientific subjects were occasionally written in French; he used it also in counting, and in making the first prose sketch of a poem, which was taking shape in his mind and demanding expression. His last important literary labor was the translation from the French of Bérenger, his favorite poet, and French was the tongue in which he spoke during the long delirium that preceeded his death. He shared the interest in the medieval that marked the early romantic movement, and obtained accurate and extended knowledge of both the old French and German literature.

German may be said to have been the language of his pen rather than that of his tongue; he never became able to speak it fluently, or without a peculiar accent. Chamisso's knowledge of German, though not above criticism for colloquial purposes, was sufficient to make him an ornament to German literature in both prose and verse, as we have

seen. His native clearness and grace, united with the well-known characteristics of German, could not but produce unusual results.

The literatures of England, Spain, and Italy were open to him. He was able to talk with the captains of American ships, which he saw in every port and on every sea, and with British officers in Plymouth; though his conversation in their tongue was the only thing that induced those grave taciturn men to laugh. His Spanish, while yet in Germany, enabled him to read Don Quixote in the original; it served him in both hemispheres as naturalist, and at San Francisco as diplomat. His title to acquaintance with Italian may be indicated by the fact that he naturalized in German poetry the peculiar verse of Dante, employing it for example, in *Salas y Gomez*, perhaps his most admired poem. Russian he began on the Rurik, but soon abandoned, finding that his ignorance of the language served as a welcome and effective barrier against his too often uncongenial companions in the crowded ship's cabin. Yet we find among his poems translations from Russian as well as more recondite sources, like the Lithuanian and Icelandic. His ability to use and enjoy Latin goes without saying, and Greek, learned while a soldier, very early made Homer at least a delightful companion.

All this made Chamisso certainly a linguist, but perhaps not a philologist. His work, however, in the languages of the Pacific, though soon superseded by investigations of more favored travelers and, in some cases, of American and English missionaries, may entitle him to the second name. In collecting word-lists and other examples of three Polynesian dialects, those of the Philippine Islands, the Radack chain, and Hawaii, he performed a great work, which deserves mention. Kadu also should be mentioned, the native who accompanied the Rurik upon its second passage from Polynesia to the Russian possessions and back to his home, and who rendered valuable aid in Chamisso's study of ethnology and anthropology as well as of language. The Radack dialect, whose written form has since been a much discussed problem, was, by an expedient that at least served in recording daily acquisitions of words, reduced for the first time to writing.

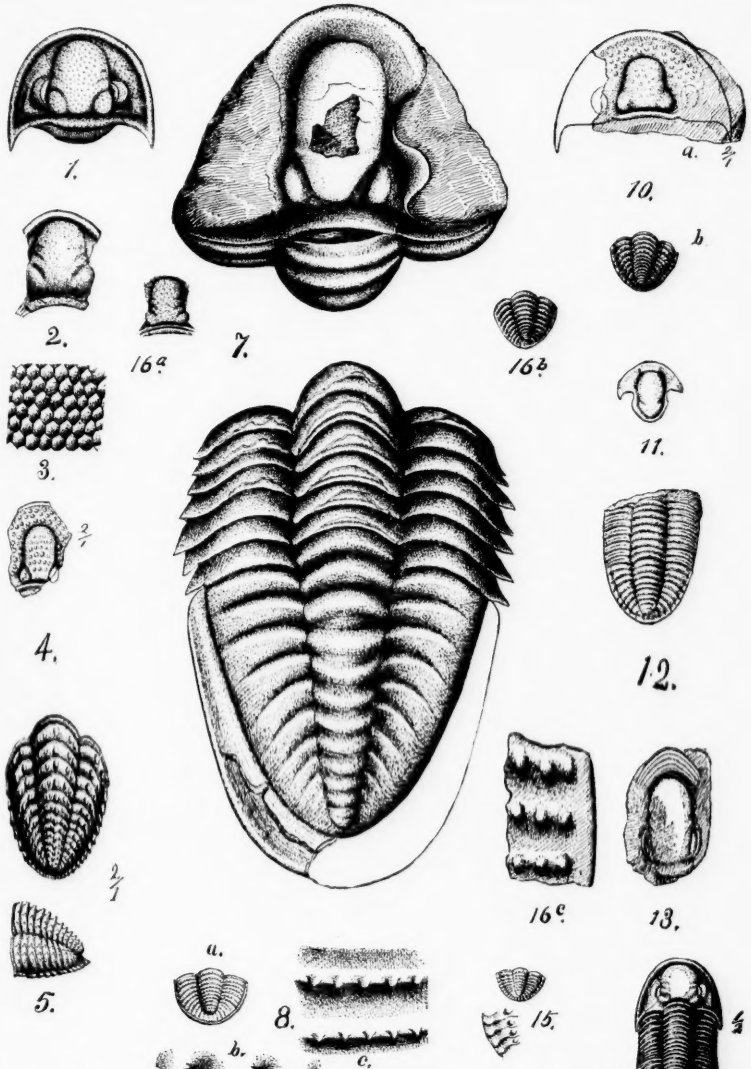
While among the Philippine Islands he used his opportunity of studying the Tagal dialect. He was by no means the first to break ground here, Spanish missionaries having long before performed the labor of giving it written form. He was able, however, to compare the claims of its three rival alphabets, and, what is more important, to enrich the royal library at Berlin with a collection of Tagal literature, which is regarded as one of his most valuable acquisitions.

The Hawaii language became familiar to Chamisso within a limited range of ideas before any attempt had as yet been made to reduce it to writing. About 1835, shortly before his election to the Prussian Academy, (to which, by the way, Alexander von Humboldt proposed his name,) he reviewed his records made 16 years before. The language had meanwhile become one of books and newspapers. His former knowledge of it appeared, however, neither gone beyond recall from lack of use, nor entirely outgrown by later development. He therefore thought it not presumptuous to attempt the task, which death had shortly before compelled William von Humboldt to relinquish, of supplying the language, by the help of its newly made literature with a systematic grammar and dictionary. The only known papers read by Chamisso before the Academy were reports of his progress in the study of the Hawaii language. For this work completeness cannot be claimed, nor did he claim the knowledge of the languages of south-eastern Asia which was necessary to the perfect understanding of the dialects of the Pacific Islands. He made known his investigations only in order to put into more capable hands "some hewn stones for the structure of science." Death interrupted him before his difficult undertaking was ended.

Thus modestly does he state in 1819 his conclusions with regard to the unity of human speech, then only beginning to prevail: "We suspect that he, who, equipped with proper knowledge, could survey and compare all the languages of speaking men, would recognize in them only different dialects derived from one source, and would be able to trace back roots and forms to a single stock."

Fifteen years later than Chamisso Charles Darwin entered upon a voyage in the *Beagle*, which in many points of its route coincided with that of the former. Darwin's great theory was developed by observations made upon his voyage, though the announcement came only after 20 years of further investigation. Chamisso's study of nature covered a much wider and more varied field; his preparation for his work and his prosecution of it were hindered by far greater difficulties than those which beset the English naturalist's path. Yet not only the botanist, but the zoologist, the student of geology, of man in his race-relations, and in his use of the lofty power of speech, all owe something to the manysided Chamisso. For, in the words of Goethe, who was, like Chamisso, poet and naturalist as well,

"Wer Vieles bringt, wird Manchem etwas bringen."



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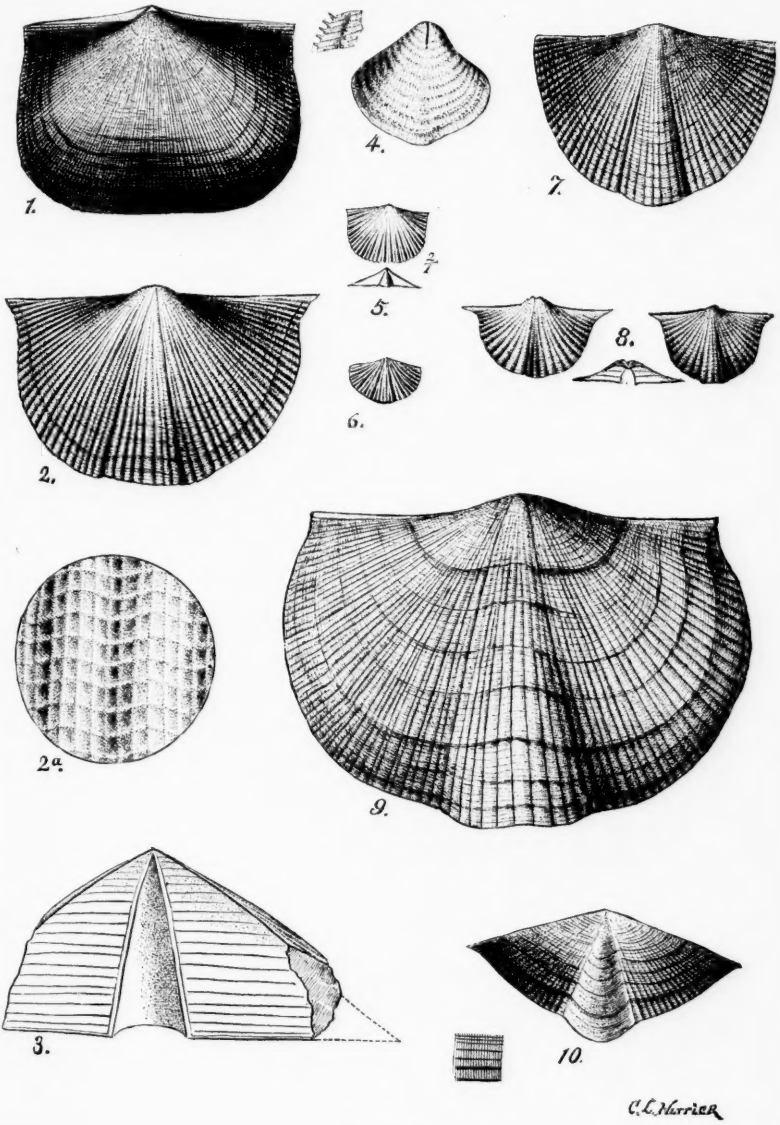

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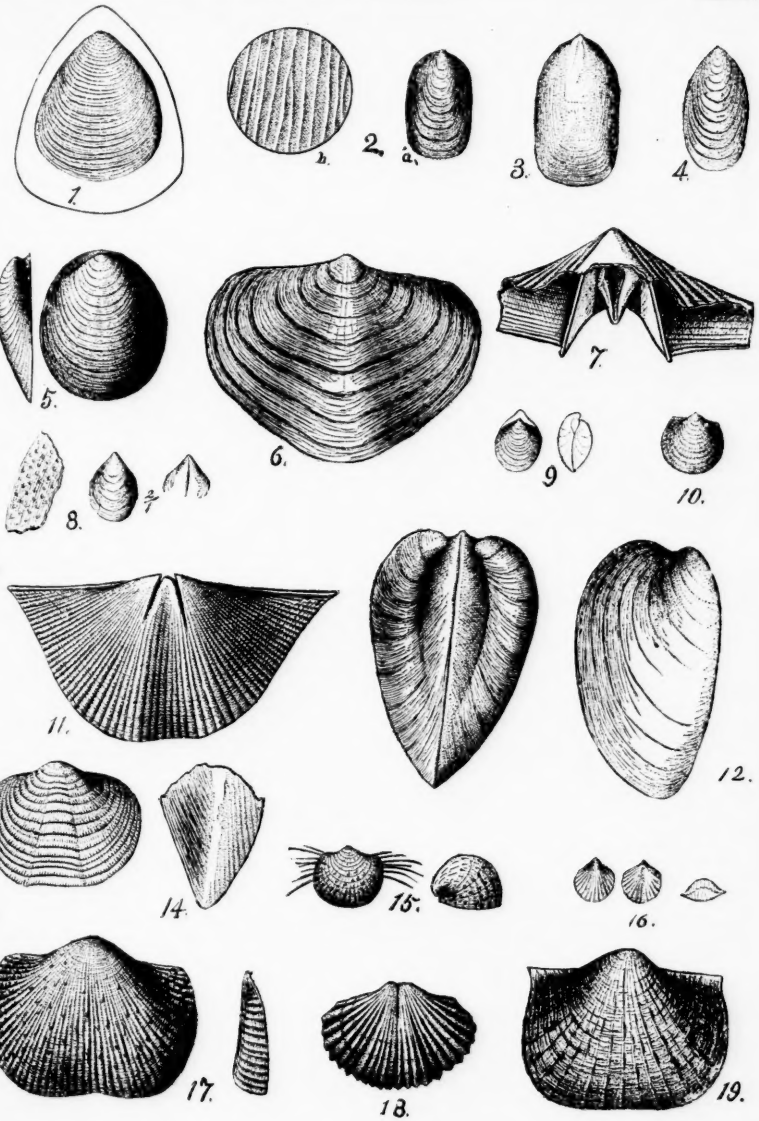

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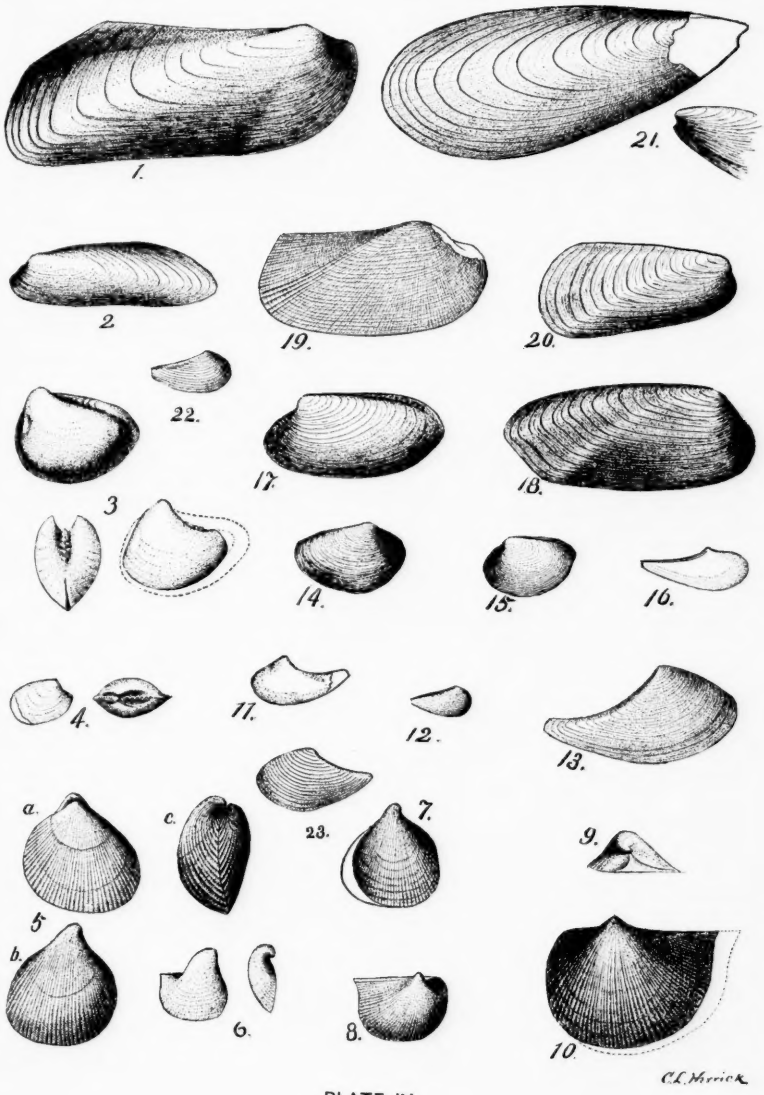

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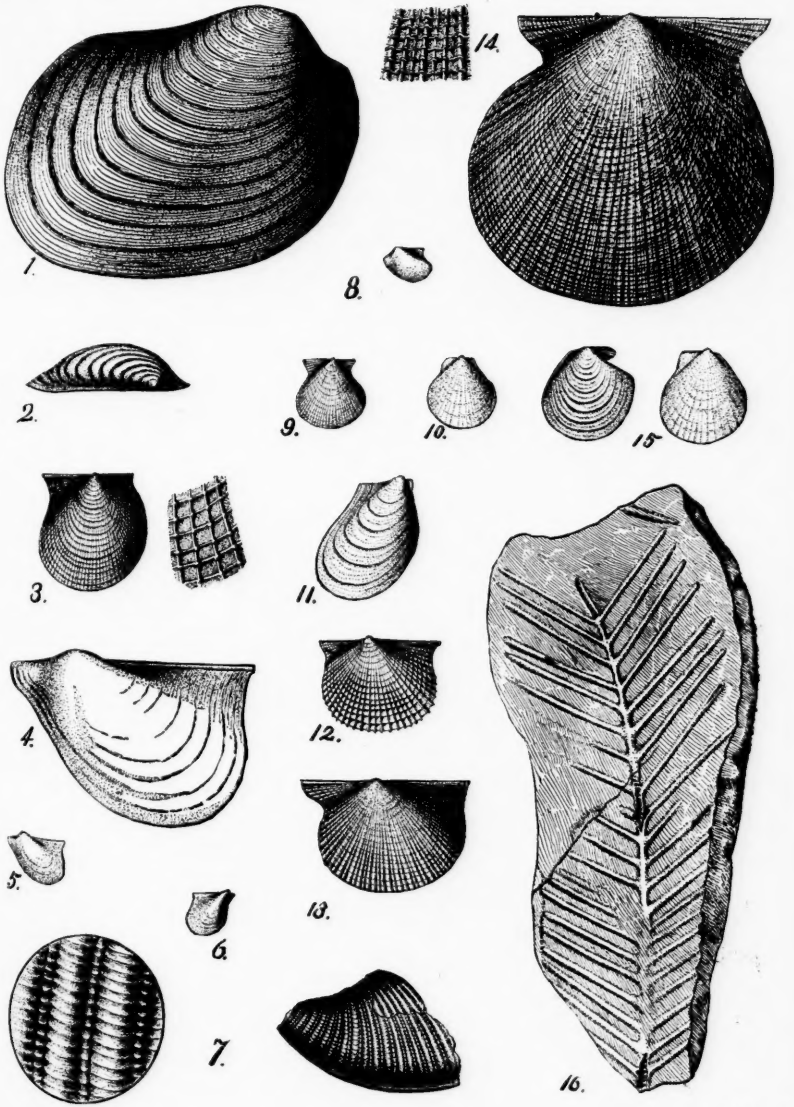

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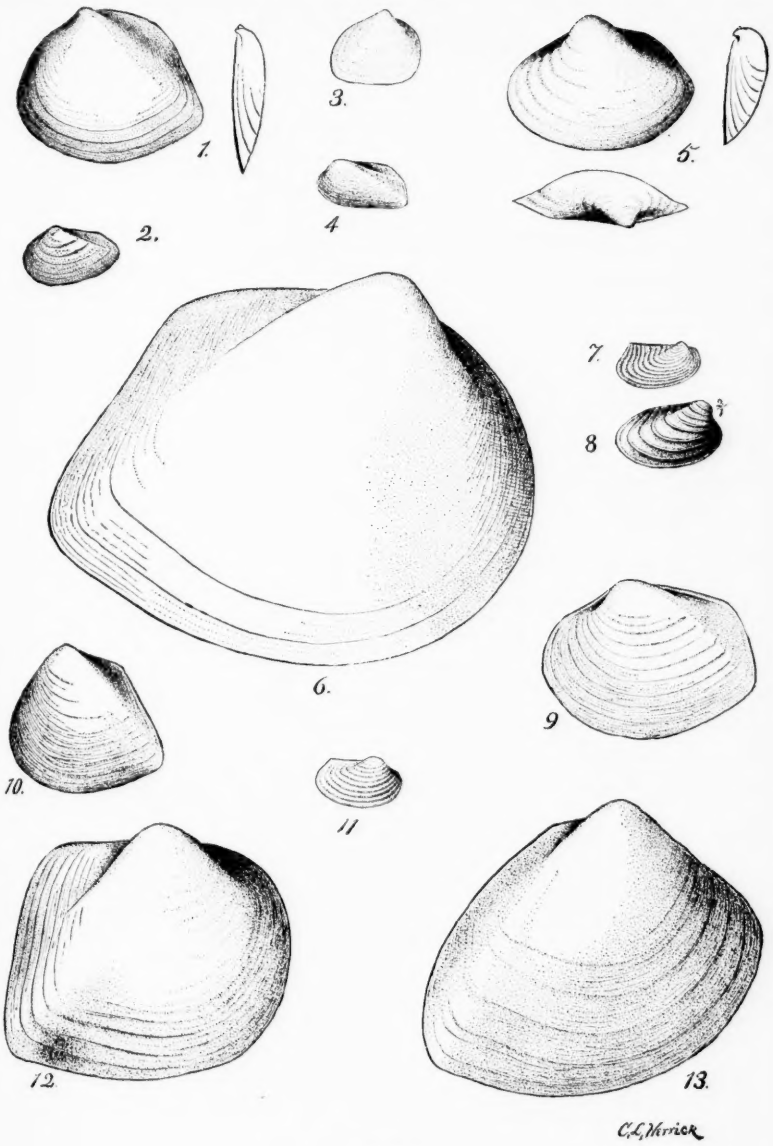

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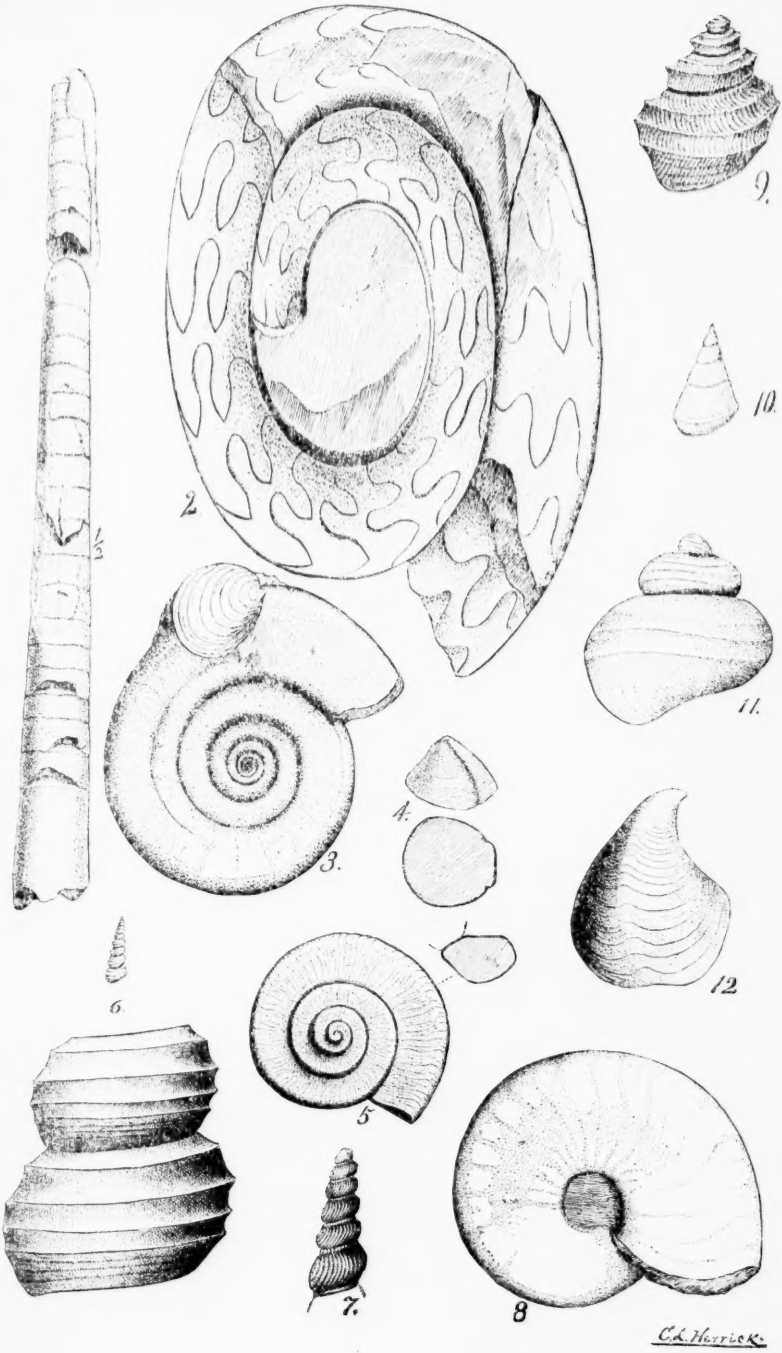

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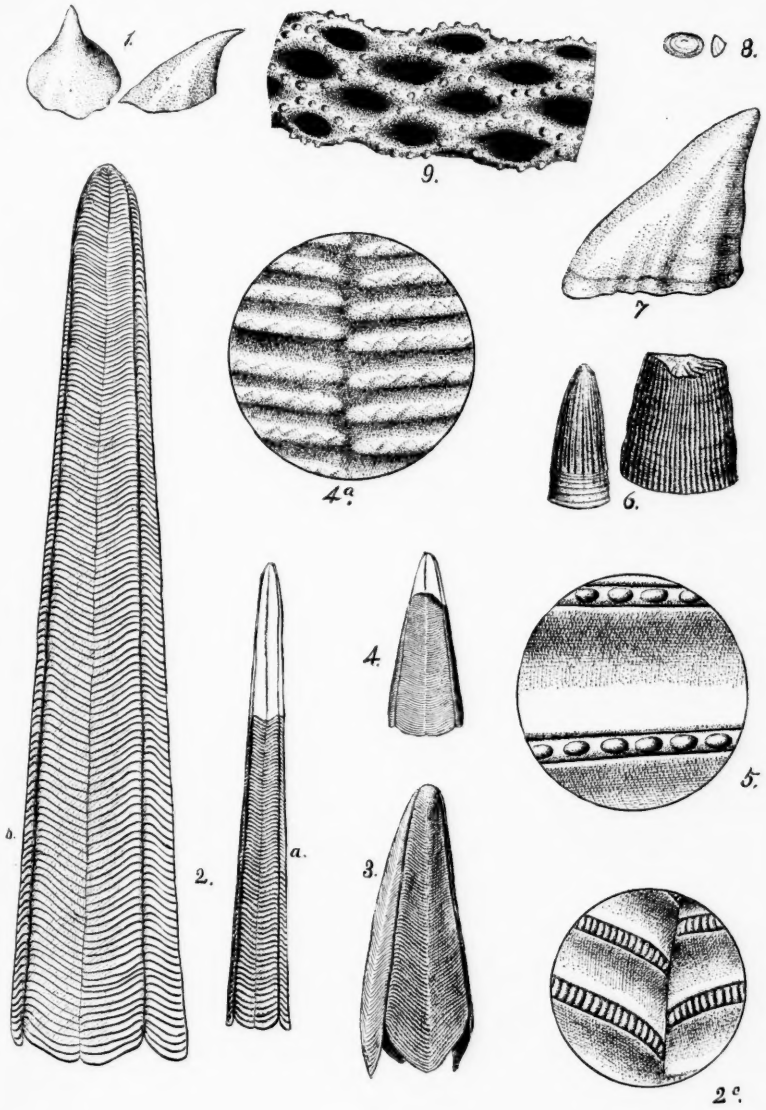

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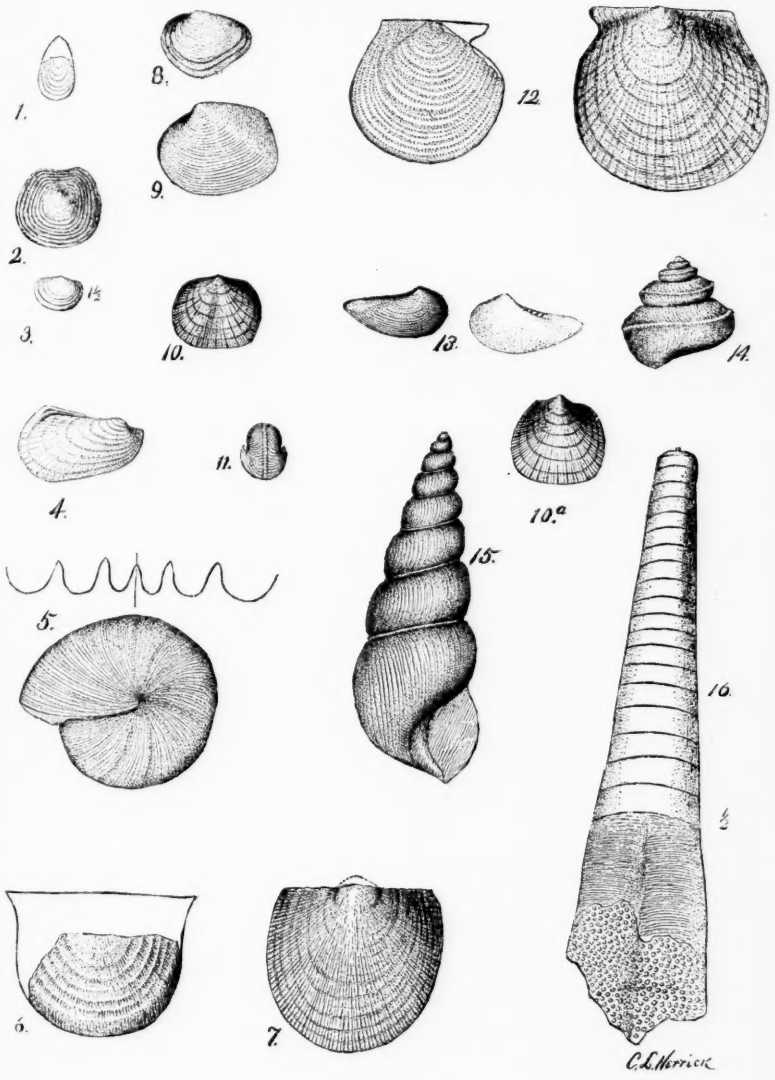

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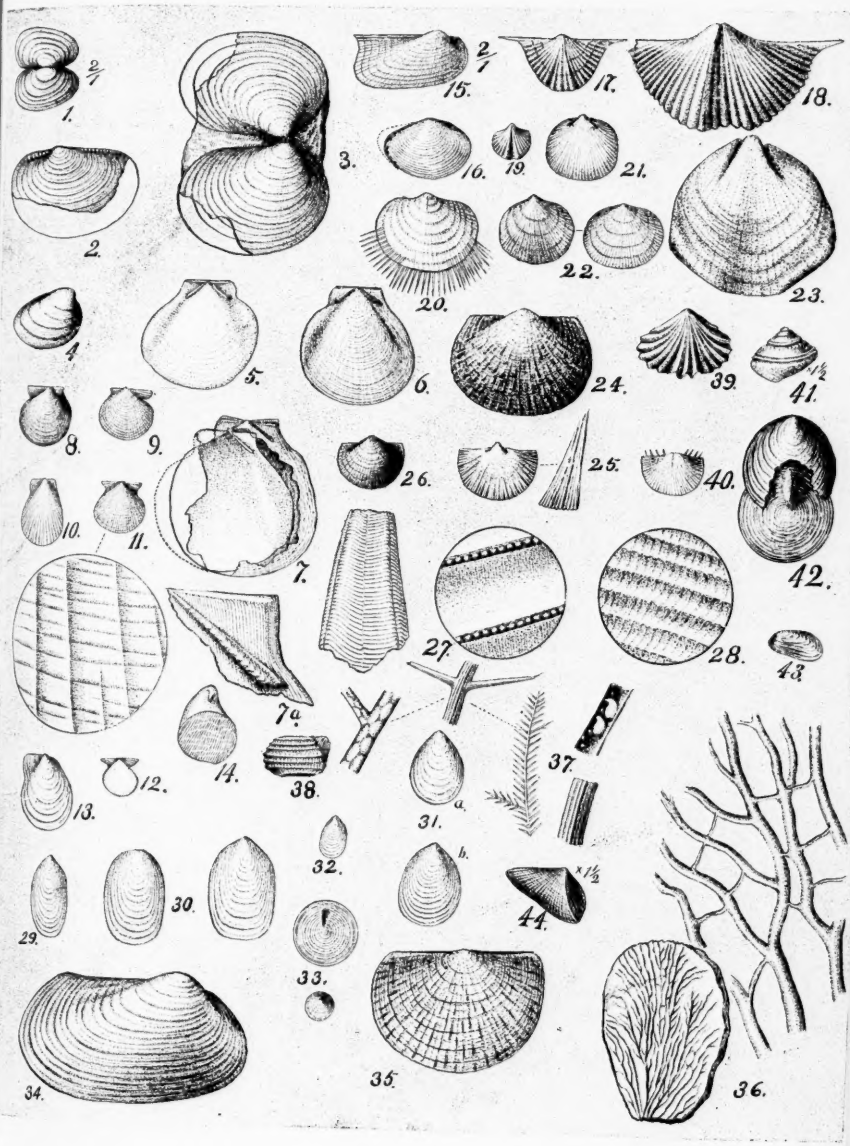
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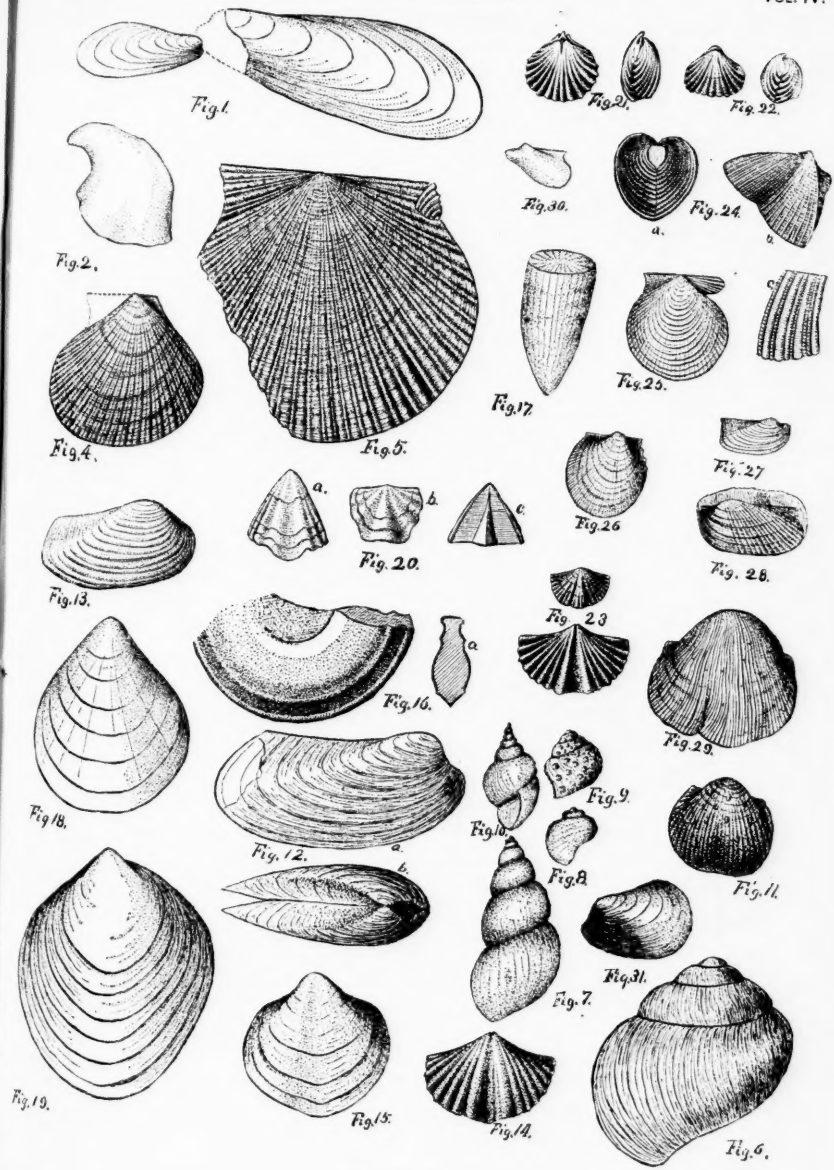
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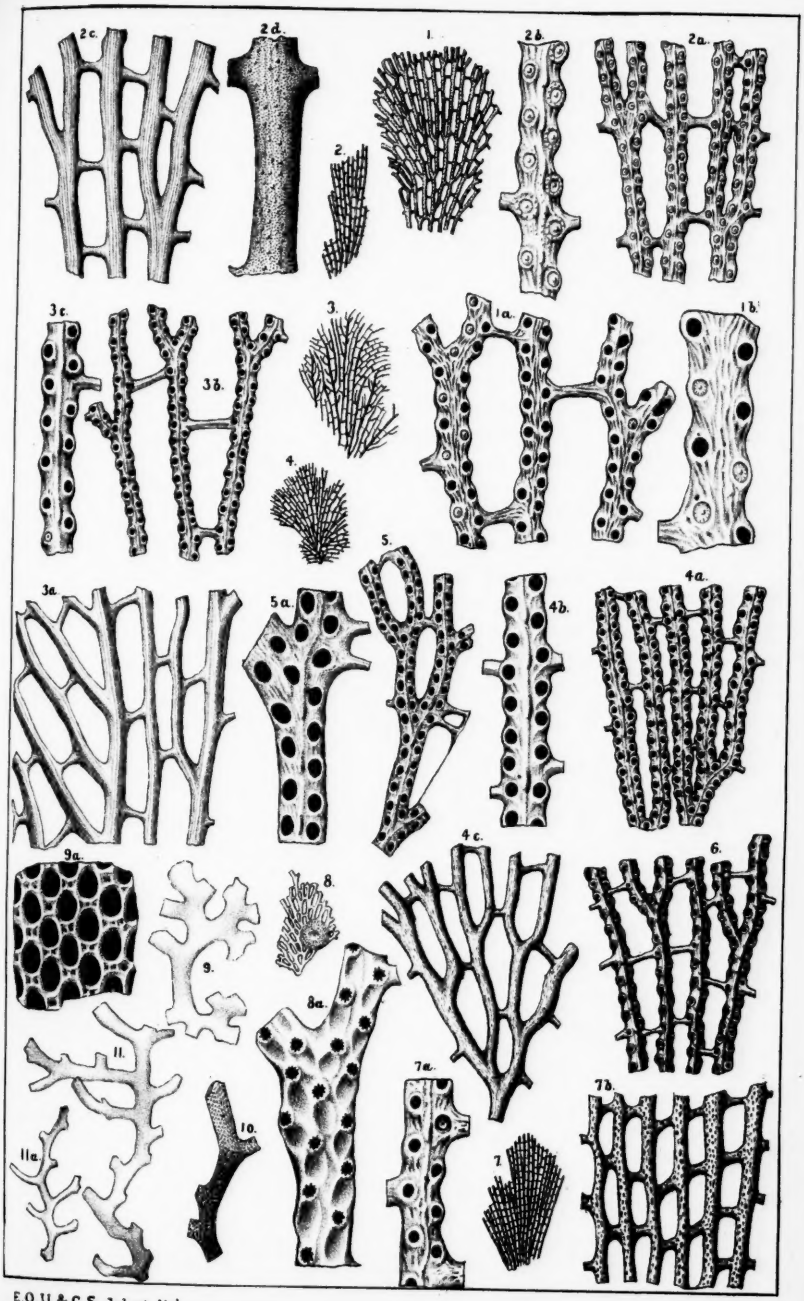
PLATE XI.



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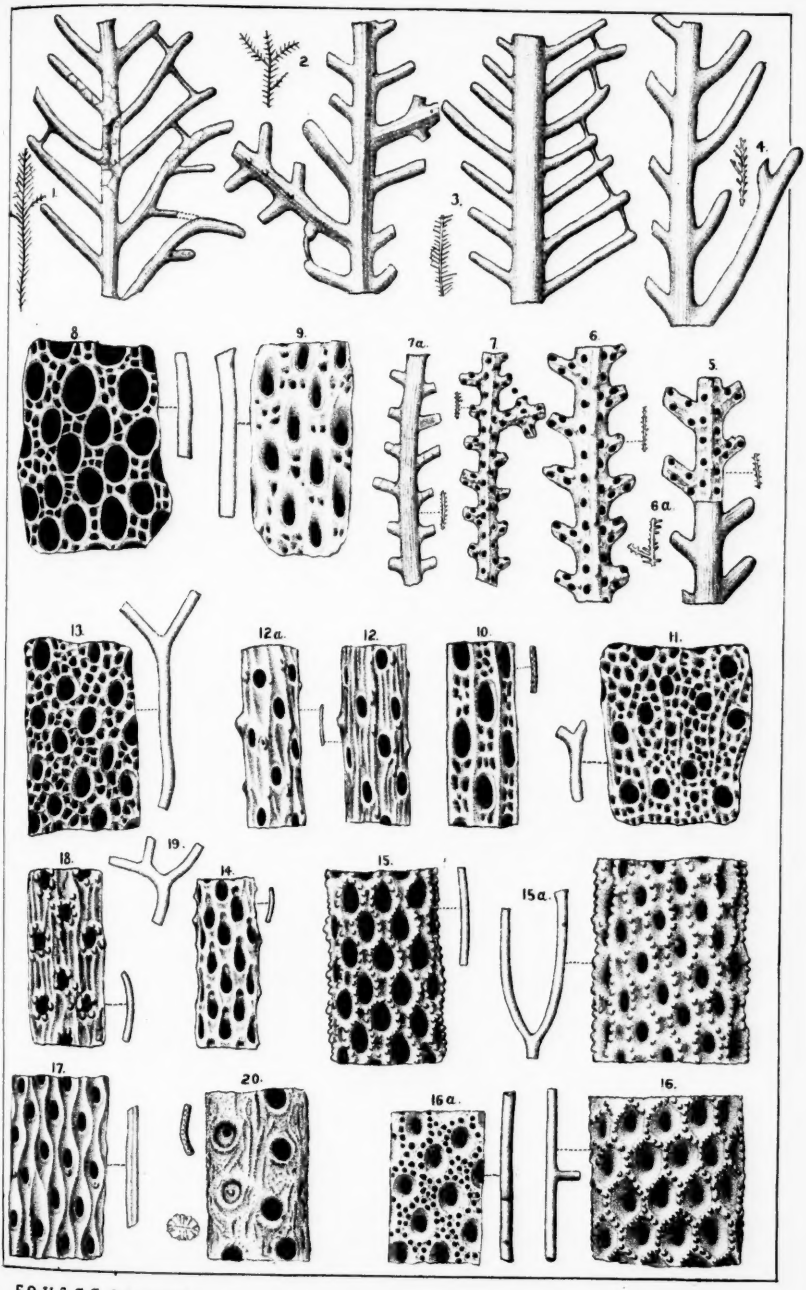

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PRONUNCIATION OF LATIN AND QUASI-LATIN SCIENTIFIC TERMS.

By Prof. Charles Chandler.

What method of Latin pronounciation should be used by the teacher of that language, and what method should be used by the scientific teacher or student in pronouncing the Latin and quasi-latin names of genera, species, etc., are two questions which should be kept entirely distinct, though in fact they are frequently confused.

The first is by no means easy to answer, and the men of most assurance on the subject are generally found to be the men of least knowledge;—many of them have never examined more than one side of the question, some have never really examined any side of it, some are not competent to examine that or any similiar question. Too many have clung to an old method from mere blind conservatism; too many have hastily adopted a new from mere love of change or from an ambition to be considered "progressive;" with not a few, an ever ready and all-sufficient argument against the method which they have happened not to adopt, is a sneer or a borrowed jest.

As a matter of fact, the teacher of Latin finds that there are very great practical advantages and very great practical disadvantages in using either the English or the Roman pronunciation. Of the latter, it may at least be said that it is a tolerable approximation to the way in which Latin was spoken at the close of the Republic, and that the number of sounds concerning which there is reasonable doubt, is not large. Even when atrociously mis-taught, as it is in most of the schools where it is professedly used, it does nevertheless far better ex-

hibit the vigor and sonorousness of the noble speech of the world-conquerors than does the weak-vowelled and close-mouthed English method.

As for the so-called Continental (i. e. German) way of pronouncing Latin, which about 1860–'75 was epidemic in many parts of this country, especially in the West, I judge that there is not one word which may be justly said in favor of its use by an English-speaking student. Like the English method, it is not and does not pretend to be the ancient way; it is to the German exactly what the English method is to the English-speaker, a conventional manner of pronouncing Latin words, so nearly as may be, according to the analogies of his own tongue. It is used, I believe, in all German schools. To the German it has very much to commend it,—to the American or Englishman, nothing whatever. That so many American colleges and schools should hastily abandon a method of pronouncing Latin which was indeed not the ancient way, but was at least natural to the learner and helped him to understand and to pronounce correctly thousands of English words, and that they should adopt in its place a method which also made no pretence of being the ancient way, and which had the very great disadvantage of being utterly unnatural to the student and of tempting him to mispronounce thousands of English words,—that this should be done, the true ancient pronunciation being all the while approximately known, seems to me to have been one of the strangest of all the vagaries of American pedagogy. It was perhaps the most curious phase of that undiscriminating Germanomania which has so often snatched at the form while entirely missing the spirit of German scholarship. The American student was naively supposed to be taking a long step toward German patience and thoroughness, when he learned to mispronounce Latin according to the German method.

As between the English and the reformed (or Roman) pronunciation of Latin, there is fair ground for discussion. We surrender much when we take either. Without a knowledge of the way in which

the Romans actually pronounced their language, its sound-changes are quite inexplicable. The farther the pronunciation adopted departs from the true—and the English departs from it very far and at many points—the more inexplicable the sound-changes become. Some of them, to one acquainted with that method only, are not only without reason but flatly contrary to reason. No accurate study of Latin phonology is possible without knowledge of the true sounds of the language. In philological work, also, comparison of Latin words with those words which in other languages are kindred with the Latin, but not derived from it, can be safely done by no one unacquainted with the Roman pronunciation. On the other hand, the young English-speaking student, in acquiring his Latin vocabulary, and in comparing with Latin words the immense element of English which is directly or indirectly of Latin origin, is very seriously retarded by the use of any other than the English pronunciation. Again, Latin poetry is incomparably more beautiful when pronounced in the true ancient way, with all the quantities carefully observed. Of course this cannot be done by those who use the English method. On the other hand, when we consider how exceedingly small is the number of those who in using the Roman method pay even the slightest attention to quantity (except in settling the accent) and that in the lower schools not one in a hundred, not one in a thousand teachers has a ready and accurate knowledge of quantities, the practical gain from using this method even in poetry are seen to be somewhat misty. Indeed, and this must always be the gravest difficulty in trying to pronounce as the Romans did, the quantity of so many vowels is unknown and seems likely ever to remain unknown, that any approach to accurate quantitative pronunciation (and the ancient pronunciation was essentially quantitative) seems hopeless. Of course, the most perplexing case is that of syllables long by position. Here all agree that the vowel was pronounced with its own quantity, short or long, regardless of the position of the syllable. But what is the quantity of the vowel in such a case? In some classes of syllables the ancient testimony is conflicting, in most

there is no ancient testimony of any weight, in many there is no ancient testimony at all. In some, the strong probability is that the vowel was long; in others, that it was short; in others, the chances are about equal. To say that we may call such vowels short unless it is certain that they are long, is an easy way of evading the difficulty; but it is hardly satisfactory to the enquiring student who is resolved to speak just as Cicero did. To direct him to pronounce them long when they are probably long, and short when they are probably short, is to impose on him a burden of investigation and decision from which the teacher himself might shrink. To pronounce without regard to quantity, above all to speak that astounding mixture of Roman and English (not unfrequently with a dash of the German) which so generally usurps the name of Roman, is a libel on a noble language, and ought to be odious to all who have any respect for either Latin or English.

I have spoken of the English method of pronouncing Latin as natural to the English-speaking student; and so it is, for it attempts to pronounce the words according to the analogy of the Latin element in English. Yet even this method is difficult of perfect attainment: for the words of Latin origin in English, though much less irregular in spelling and pronunciation than the Saxon words, are still far from regular; and a pronunciation of Latin after their analogy must exhibit corresponding inconsistencies. Thus s, which with the Romans had probably always the same sound, has in our pronunciation one sound in *seco*, another in *rosa*, a third in *Asia*, a fourth in *fusio*, and is silent in *scientia*; and, though the student would perhaps spontaneously pronounce these particular words correctly on account of the similar words in English, yet numerous cases arise where the direction to "pronounce as you would if it were an English word" is not at all satisfactory, since there may be no common English word similar to the one in question (*e. g. Phthia*, *sibi*), or the several English words similar to it may not all be pronounced alike (*e. g. vitium*, *cf.* vice, vicious; *facies*, *cf.* face, facial), or the similar English word may be

entirely misleading (*e. g. honoro, cf.* honor). The student, therefore, should not be left to "pick up" his English pronunciation of Latin, but from the beginning should be taught its rules and should be assiduously exercised in them, until he shall have learned to leave nothing to chance or to conjectural analogies.

Morever, in case the reformed pronunciation is the one used, we can not too strongly and frequently impress upon our students the necessity of mastering the principles of the English method also: for this must, at all events, be used whenever there occurs in an English sentence any of the following: (1). Latin or Greek proper names, geographical, biographical, or mythological; (2). Latin (or latinized) words which have been adopted in English without change of spelling (*e. g., stratum, apparatus, bonus, syllabus, comitia*); (3). Latin law-terms, proverbs, and other short familiar quotations (*e. g., habeas corpus, in statu quo, e pluribus unum*); (4). Latin and quasi-latin scientific names (with some exceptions to be mentioned later). On this point, I believe, all authorities are entirely at one;—whatever system of Latin pronunciation we use, all the above-named classes of words and phrases must, when they occur in English sentences, be treated as English and pronounced accordingly. This is not only settled by authority, but also required by the clearest reasoning; for while some of these terms are used by only a few specialists, others are among the most familiar of every-day expressions, and between these two classes others stand at all intervals. Who could draw the line between the familiar and the unfamiliar, and say, "These shall be considered as natives, and those as aliens?" Such a distinction is evidently impracticable, More than into any other Germanic language, there is a constant current of words flowing easily from Latin into English without change, especially of technical terms called for by the insatiate natural sciences. No attempt to stay the tide can succeed; and it is well that all authorities agree that such terms, when needed and when properly formed, are to be treated immediately as a part of our language and pronounced according to the

rules which govern other words of the same origin. Here is the point where many teachers using the Roman method are open to severest criticism. They do not impress upon their students the necessity of using the English method in all the four cases above mentioned. It is to be feared that the teacher himself does not always understand that this is the rule. Certainly, in examining men who have been prepared for college in the public schools of this state, I find that almost invariably those who have used the Roman or the Continental method make, when translating into English, numerous and gross mistakes in pronouncing classical proper names, except a very few of the most common. *Cæsar* and *Cicero* are not mispronounced; but *Caius* is invariably Ki-us; the g in *Orgetorix*, *Gyas*, *Geryon*, is hard; the faithful *Achates* is Akah′-tās or Akah′-tēz; *Labienus* is Lah′-bi-ā′-noos or La-bi-a-nus; the *Sequani* and *Haedui* appear as Sā′-qua-nē, Sĕk′-wa-nē, Se-quah′-nē, Hī-doo-ē, Hī-doo-ī, and in various other disguises. Questioning usually elicits the fact that in translating into English the boy has been allowed to pronounce proper names entirely at random, or that he has even been instructed to pronounce the names in both English and Latin according to what was fondly supposed to be the Roman method,—being in fact the oddest imaginable jumble of different methods.

When we say, then, that the ancient pronunciation is approximately known, we must qualify by adding this statement, that, while we do know how the Romans uttered the long vowels and how they uttered the corresponding short, yet in very many syllables it is quite impossible to say whether the vowel is long or short. Of course these doubtful syllables, though so numerous, are still few when compared with those whose quantity is certain; but in case of even this last mentioned class, a huge difficulty arises for the faithful learner—the difficulty of remembering. In all the recent beginner's manuals, some of them very admirable and to a considerable extent truly inductive, it is assumed or expressly stated that the learner is to master the natural quantities of all the syllables in every new word and form as he

comes to it. Now I have no hesitation in saying that this is a burden which the average student can not bear, and which the brightest and most faithful student quickly gives up the attempt to bear. Even when all doubtful syllables are evasively classed with the short, the burden is still too great for any memory not phenomenal. To remember that *a* is long in *Mars* and short in *pars*, long in *actum* but short in *factum*, long in *sperans* but short in *sperantis* and probably *sperandum*; that *u* is long in *duco* and short in *duxi*, while *e* is short in *rego* but long in *rexi*; that *i* is short in *ingero* but long in *infero*; to remember and readily use these and similar facts, apparently unclassifiable and inconsistent, is a most trying task to the young man who knows that he has only a part of one life-time to spend on Latin. Sooner or later he abandons the hopeless task (as his teacher has probably done before him); and his pronunciation of Latin words, except when he is reading a text with all quantities marked for him, is a piece of mere guess-work. I believe that this is not an exaggerated description of the Roman method as usually taught by good teachers to bright boys; and whether this endless guessing is likely to have a wholesome effect on the mind in its formative stage, seems to me to be a question worthy of serious consideration. As to this method as taught by the average teacher to average boys, the results are so grotesque as to be quite beyond my powers of description.

In scientific class-rooms, too, strikingly incorrect ways of pronouncing technical terms are prevalent. I am convinced that also this is due in large measure to false notions concerning the proper province of the reformed method of pronouncing Latin. Let me repeat that this method should be used, if at all, only in the Latin class-work, and that there is not a shadow of authority or reason for using it in the case of scientific terms, law phrases, or the other classes of words mentioned above. For all these there is only one correct way—the English. As some of the best school grammars have in late years ceased to give full rules for the English method, it may not be amiss

to give an account of it, with special reference to the most prevalent errors in pronouncing scientific names.

The scientific terms falling strictly under the rules for the English pronunciation of Latin are the following:

1. Real Latin words, including many generic names and most descriptive names of species. The specific names are, of course, adjectives.

2. Real Greek words, put into a Latin form and accented always according to the Latin rule. They are mostly nouns used as generic names.

In latinizing them, kappa is changed to c; alpha iota, to æ; omicron iota, to œ, (except in the ending -oides and a few other cases); upsilon, to y; and epsilon iota to ī, sometimes to ē (the instances in which it is represented by ei are mostly mere blunders). Theta, phi, chi, become th, ph, ch, respectively, which are always to be reckoned as single consonants.

3. Modern derivatives and compounds from classical sources and with classical endings. They include nearly all names for divisions higher than genera, and likewise the vast majority of recent generic names, mostly compounds of Greek origin, but all in a Latin form.

4. Many quasi-latin words, not of classical origin but having a Latin ending and classical appearance, and falling readily under these rules (*e.g.* Catalpa, Cuscuta, Robinia, Batatas.)

A class of quasi-latin words (*e.g.* *Woodwardia*) subject to these rules only in part, and another class (*e.g.* *Whiteyi*) not subject to them at all, will be mentioned at the end of this article.

SYLLABLES.*

Each Latin word has as many syllables as it has separate vowels and diphthongs. Ae and oe are usually diphthongs and printed æ,

*I have tried to make more clear the following rules, by giving in parentheses the correct pronunciation of some of the words cited as examples. In some cases, where the pronunciation could be indicated without respelling, they

œ. When printed separately (unless by mistake), the e makes an additional syllable, as in *Danae* (dan′-a-ē), *Callirrhoe* (kal-lĭr′-ro-ē), *Meroe* (mĕr′-o-ē), *Leucothoe* (leu-kŏth′-o-ē), Leu-cŏn′-o-ē, *Isoetes* (I-so′-e-tēz). On the other hand, beware of making two syllables out of one in words like Ægīlops (ĕj′-i-lops), *Maia* (Mā′-ya), *Hygeia* (hi-jē′-ya), *Harpyia* (har-pī′-ya). All words ending in āius, āia, ēius, ēia, have the accent on the ā, ē; and the i=y. Of course final e is never mute in words which retain their classical ending. Do not omit it in Dī′-cē, *Dirce* (dir′-sē), *Ate* (ā′-tē), *Clytie* (klish′-i-ē, 12), *Hecate* (hek′-a-tē), *Aphrodite* (ăf″-ro-dī′-tē), *Eunice* (yoo-nī′-sē, spelled wrongly in list of asteroids Eunike); but many words drop their classical endings and have anglicized forms in mute e.

ACCENT.

In words of Greek origin, the accent which they had before being latinized is entirely disregarded.

1. In dissyllables, accent the penult.

2. In polysyllables, (a) accent the penult if it is classically long by nature or position; (b) otherwise, accent the antepenult. No exceptions. If the penult is common, treat it as short.

3. In long words there is a secondary accent on the second syllable before the primary accent, if such syllable is classically long

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have been syllabified and accented without parentheses. Such words are not italicized. In the words respelled in parentheses, the vowels marked long have their common English long sounds, as in mate, mete, mite, mote, mute; those marked short are sounded as in mat, met, fit, not, nut; ah, as a in father; a final, as in quota; other unmarked vowels as they would be in an English syllable of the same spelling; sh. as in shun; zh, as s, in pleasure; g, as in go; j, as in join; other letters have their usual English sounds. The division into syllables is to show the vowel sounds only, and would not in some words be correct for other purposes. The sign of equality between two words indicates that the first is pronounced as the second. For brevity's sake, when a syllable is long by position, I speak of the vowel as long by position. This can not produce confusion, as the English method does not distinguish between natural and positional length. A few small exceptions, a knowledge of which is not necessary for pronouncing scientific words, have been intentionally omitted. The secondary accent is marked ″.

or is the first syllable in the word; otherwise, on the third before the primary. *Alopecurus* (a-lŏp″-e-cū′-rus, 4 ; 8, c) Eleochăris (ē″-le-ŏk′-a-ris, 17, e ; 18, c).

The accent, both primary and secondary, is of the highest importance, as by it the sounds of the vowels are largely decided. In order to know how to pronounce a polysyllable, we need to know the classical length of the penult, which fixes the primary accent. In some long words, we must also know the classical length of the second syllable before the primary accent, thus fixing the secondary accent.

4. It is to be borne constantly in mind that, after the accent is determined, the English pronunciation of a word has absolutely nothing to do with the classical quantities of its syllables. The sound of a vowel will depend partly on its being accented or not, partly upon the letters following it, sometimes on peculiarities of English words of similar form, but never directly upon its ancient length. As a matter of fact, most syllables classically long are in English *pronounced* short, and very many anciently short are *pronounced* long.

The classical length of the penult is generally obvious ; but in numerous cases a Greek or Latin Dictionary must be consulted. The following rules cover most cases : they refer to the ancient length of syllables, not to the English sounds of the vowels, and are to be used only in deciding the accent.

5. A syllable is long, if it contains (a) a diphthong (*e.g.* Spi-ræ′-a); or (b) a vowel representing a diphthong (*e.g.* Sci-ū′-rus, from skia, shadow, and oura tail ; Er-e-ge-nī-a, from the Greek *Ἐριγενεία*); or (c) a vowel naturally long (*e.g.* a-trȳ′-pa, trūpa, a hole ; such words are few); or (d) a vowel followed by j, x, z, or any two consonants, in which case the vowel is "long by position" (*e.g.* Leu-cō′-jum, Hȳ-pox′-is, Os-mor-rhī′-za, Gym-no-sper′-mæ); but (e) note that when l or r follows f or any mute (p, b ; t, d ; c, g ; ph, th, ch), the two are counted as one consonant, and do not make a short vowel long by position ; *cf.* 15 and 17 d.

6. A syllable is short if it contains a naturally short vowel before a single consonant (or mute with l or r). A vast majority of vowels before a single consonant are short by nature.

7. A vowel is short by position before another vowel, a diphthong, or h. This rule covers the penult in all the host of true Latin words ending in -ius, -ia, -ium, -io, -eus, -ea, -eum. There is no danger of falsely accenting them.

8. But note that if a vowel represents a Greek long vowel or diphthong, it is not made short by position before another vowel or diphthong (*e. g.* Bryozōon, from zō-on, living thing). Here belong numerous words of Greek origin in īa, ēa, īon, āis, ōis, ēus, of which many have been adopted as scientific names; as, On″-o-clē′-a, Cas″-si-o-pē′-a, De-ī″-o-pē′-a, Tha-lī′-a, A-rī′-on, La-od″-a-mī′-a, Iph″-i-ge-nī′-a. They are very often mispronounced.

CONSONANTS.

9. Consonants are generally to be pronounced as they would be in the same syllables in any English word. A few points need to be specified.

10. Before e, i, y, æ, œ, pronounce c like s, and g like j; elsewhere, pronounce c as in come, g as in go (Gyrocĕras=jī-rŏs′-e-ras; *Cyclostoma*=sī-klŏs′-to-ma; *Gyges*=jī-jēs; *Cynoglossum*=sĭn″-o-glŏs′-sum, 18, c). Ch=k always; th as in thing; ph as in physic; j as in join; x at the beginning of a syllable=z, (*Chiton*=kī′-ton; *Ichthyophagi*=īk″-the-ŏf′-a-jī; *Xylophaga*=zī-lŏf′-a-ga, 16 a).

11. If a word begin with an unpronounceable group (pt, ct, cn, gn, mn, pn, chth, phth, tm, ps) the first letter of the pair is not sounded (*Phthia*=thī-a; *pteris*=tē′-ris; *ctenoconcha*=ten″-o-kŏn′-ka; *pseudobuccinum*=sū″-do-bŭk′-sĭ-num); but in composition, after a vowel, both are sounded (*neuropteris*=nū-rŏp′-te-ris).

12. Aspiration. When ci, si, and ti, follow an accented syllable and are followed by another vowel, they are pronounced she;

but if the preceding syllable end in a vowel, then si=zhe. *Senecio* (se-ne′-she-o, 17, e), *Clytia* (klĭsh′-e-a, 18,c), *Cirsium* (sir′-she-um); *Artemisia* (ar te-mĭzh′-e-a); *Caesia* (se′-zhe-a). By exception, *Asia*=ā′-she-a instead of ā′-zhe-a, and *Asiaticus*=ā″-she-ăt′-ĭ-cus.

Cy is aspirated in a few words before o (*Procyon*=prō′-she-on; *Sicyon*=sĭsh′-e-on).

Ti is not aspirated after s, t, or x, nor in Greek names in -tion.

VOWELS AND DIPHTHONGS.

In general, a vowel or diphthong is sounded as it would be in the same position in an English word. A few points need particular notice.

13. Æ and œ are always sounded as e in the same situation would be. They are often wrongly sounded long when they should be short. Dædălus (dĕd′-a-lus, 18, c, not dē-da-lus), Œnōne (ē-nō′-ne).

14. Au, and eu, when diphthongs, are always sounded long, as in the English words laud, feudal.

Y is always sounded as i in the same situation would be.

15. In the following rules, remember that the expression "a single consonant" includes all cases (except the few mentioned in 16, d) where a mute is followed by l or r. The two are counted as one so far as their effect on the sound of a preceding vowel is concerned, though they may be divided in syllabification: *cf.* 5 (e).

16. Special Cases. For convenience, I group together here certain exceptions to various rules.

(a). A final, or a in an unaccented syllable (not final) before a vowel or single consonant, has the obscure sound of a in quota and oracle (*e.g.*, Gla-bel′-la).

(b). The peculiarities of a after qu, and of all the vowels before r, are exactly as in English.

(c). I final has its long English sound. In other unaccented syllables, except the first, it has its short sound; and before a vowel

this is nearly like e (Unio=ū′-ne-o). In words accented on the second syllable, i has its long sound when it is initial followed by a single consonant (I-thō-ne; *cf.*, Gĭ-nor-ga), and when it closes the first syllable before a vowel (Dī-ō′-ne, Lī-ā′- tris).

(d). u has its short sound before bl (Pŭb-lĭc′-o-la); and other vowels before gl, tl, thl, (*Ægle*=ĕg′-lē, 13; *At-las*; Ath-lē′-ta; *Aglaia*=ăg-lā′-ya). The above given exceptions to the following rules, being made simply to conform to the peculiar pronunciation of certain similar English words, do not give any trouble in applying, except in the case of initial syllables with i.

17. VOWELS SOUNDED LONG. Whatever its classical length may be (4), a vowel is *pronounced* long in the following situations:

(a). Before a vowel or diphthong; *Euproops* (ū′-prō-ops), *Geum* (jē′-um); but note exceptions under 16, (a), (c).

(b). At the end of a word; but note 16, (a).

(c). In an unaccented syllable (not final) before a single consonant; Le-ō-nū′-rus, Blē-phil′-i-a, Cū-nī′-la; but note 16, (a), (c).

(d). In an accented penult before a single consonant (or mute with l or r, 4); *Stachys* (stā-kis), strā-tum (not strah′-tum or străt′-um), *Phryma* (frī′-ma), mā-trix, Lichas (lī-kas), Lythrum (lī-thrum, not lith-rum), A-trȳ′-pa (not a-trip′-a), Cȳ′-pris, Arum (ā′-rum, not ah-rum), mā′-ter (not mah-ter or măt-er), Cnicus (nī-cus), nī-gra (not nig-ra), Mī-tra, stō-ma, Clē-thra, Is″-o-pȳ′-rum.

This rule is without exception. Mistakes are very common, especially in dissyllables, sometimes arising from a vague feeling that the classical quantity ought to determine the English sound, sometimes from regarding gr, tr, thr, etc., as having the effect of two consonants, sometimes from mistaken analogies with common English words.

(e). In words like Gā-lī-um, As-tē′ ri-as, Mō-rī-o, Pte-le-a, *i. e.*, where an accented a, e (or æ or œ, 13), or o comes before a single consonant followed by two vowels of which the first is e (æ, œ, 13), i, or y, Gō″-ni-a-ti′-tes, Ha-lō-ni-a. Here belong the host of words ending -arĭa, -onĭa, -aceae, -alĭa, -anĭa, -enĭa, etc., (but, of course, not those

in -icĭa, -ilĭa, -inĭa, etc., for the first of the three vowels must be a,e, or o).

18. VOWELS SOUNDED SHORT. Whatever its classical length (4), a vowel is pronounced short in the following cases:

(a). In final syllables ending in a consonant; but final -es is pronounced like the English word ease. *Athyris* (ath′-ĭ-ris). *Atropa* (ăt′-ro-pa), *Myriopoda* (mĭr″-e-ŏp′-o-da), *bicolor* (bĭc′-o-lor), *Schizodus* (skĭz′-o-dus), *Macrochilus* (măc″-ro-kĭ′-lus), *Promacra* (prŏm′-a-cra), *Polypora* (po-lĭp′-o-ra), *Dolichonyx* (do-lik′-o-nix), *Trichostema* (trĭk″-o-stē′-ma), Fĕl′-ĭ-dae, *Granatocrinus* (grăn″-a-toc′-ri-nus).

(b). In any syllable before two consonants (except a mute with l or r).

(c). In any accented syllable (except the penult) before one or more consonants. Of course, it makes no difference whether the accent is primary or secondary.

To this most important rule there are two exceptions only:

(1). All words described under 17, e:

(2). The vowel u before a single consonant (tū′-ni-cā′-ta, sū″-bu-lĭ′-tēs). This (18, c) and the rule for accenting pollysyllables with short penult (2, b) are closely connected. Both are very frequently violated, often in the same word,—far more frequently than any other rule.

It is to be especially noted that, while the first vowel is long (17,d) in such words as *Fe-lis*, *Ca-nis*, *A-phis*, *sto-ma*, it is short (18,c) in such as Fel′-ĭ-dæ, Can′-ĭ-dae, Aph′-ĭ-des, stom′-a-ta. All names of families in -idae have the penult short.

In nearly all compounds of Greek origin, the penult vowel, when followed by a single consonant, is classically short; and the antepenult is accented and pronounced short. Here belong all words ending in the following: (The same word may appear in different compounds with various endings, -us, -a, -um, es, -os, -on, -e, -is, etc. Only one form is given. The preceding vowel is retained in some cases to prevent confusion with other endings).

—cephalus (head).
—ceras (horn).
—crates (strength).
—crinus (lily).
—cyclus (circle).
—domus (dwelling).
—dromos (running).
—genes (race).
—gnathus (jaw).
—lepis (scale).
—lysis (loosing).
—machus (fighting).
—meris (part).
—odus (tooth).
—odon (tooth).
—opus (foot).
—ypus (foot).
—ipus (foot).
—obolus (throwing).
—omphalus (umbilicus).
—onyx (nail).
—philus (loving).
—phorus (bearing).
—pteris (fern).
—pteryx (wing).
—pterus (fin).
—phytum (plant).
—physis (nature).
—poda (foot).
—pora (pore).
—phagus (eating).
—spora (spore).
—spila (spot).
—stropha (turn).
—stylus (style).
—stoma (mouth).
—sthenes (strength).
—tropa (turn).
—thyris (little door).
—tomus (cut).
—trephes (nourish).
—triche (hair).

The following have the penult long:

—anthera (anther).
—chilus (lip).
—chirus (hand).
—damīa (conquering).
—dorus (gift).
—genīa (born).
—gyra (ring).
—ites (stone).
—lites (stone).
—mene (moon).
—nīce (victory).
—nema (thread).
—otis (ear).
—pogon (beard).
—stema (stamen).
—spira (spire).
—theca (case).
—trema (hole).
—trypa (perforation).
—urus (tail).

In pronouncing these long words, heed must be taken of the secondary accent also. Æ and œ are shortened under rule 18, c, whenever e would be; Cæcidae (sĕs′-i-dē), Œnothēra (ĕn′-o-thē-ra), Ægilops (ĕj′-i-lops.

Two classes of scientific terms, represented by *Woodwardia* and *Whyteyi* respectively, I have already referred to as not coming under these rules. The former class consists of modern proper names which have been latinized in part only. They have the endings, -onia, -ensis, -ia, -ii, etc., and are accented according to to the general rule; but the unlatinized part retains its own pronunciation(sometimes sligthly effected by the change of accent.)

The earlier rule in latinizing proper names was to give them a purely classical form. The result was often to render them nearly or quite unrecognizable. The present tendency is to preserve the identity of the name. A. S. Miller, in the preface to his *American Palæozoic* Fossils, argues that the rules of the British Association do not go far enough in this direction. He defends such forms as *Whiteyi* on the ground that White and Whitey, Case and Casey, Moor and Moore, will be confused, unless the -i be added to the name unchanged. In such forms as *Whiteyi*, *Smithi*, *Blacki*, *Blackiei*, the part before the i is to be pronounced exactly as if the i were not there.